



**Consumer Federation of America**

**THE SPECIAL PROBLEM OF SPECIAL ACCESS:  
CONSUMER OVERCHARGES AND  
TELEPHONE COMPANY EXCESS PROFITS**

**MARK COOPER**

**DIRECTOR OF RESEARCH, CONSUMER FEDERATION OF AMERICA  
ADJUNCT FELLOW, SILICON FLATIRONS, UNIVERSITY OF COLORADO  
SENIOR FELLOW FOR ECONOMIC ANALYSIS,  
INSTITUTE FOR ENERGY AND THE ENVIRONMENT, VERMONT LAW SCHOOL**

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## **EXECUTIVE SUMMARY**

### **THE IMPORTANCE OF SPECIAL ACCESS TO CONSUMERS AND THE ECONOMY**

As digital technology spreads through society, the communications sector and the Internet become the core of the digital economy. The size and importance of communications grows dramatically. Many activities that took place in physical space now take place in cyberspace and are dependent on communications. By substituting communications as an intermediate factor of production for physical transportation transaction costs are lowered, increasing economic efficiency. Those, intermediate goods or services are consumed by businesses to produce the goods and services they sell to the public.

A wide range of businesses and public agencies need secure, dedicated high-speed, high-capacity connections to the wireline communications network to function well. Plain old telephone service does not meet the service and quality needs of an increasing array users and uses that must rely on special access services. These include

- cellular service,
- small, medium, and large businesses that need much more capacity than a single telephone line,
- branch networks (like ATM's or gasoline stations), who have many nodes that need to be online all the time, and
- businesses like health care providers, who need to move large quantities of data between their offices, frequently in real time.

Digital communications are not free, however. They have significant costs. The cost of those intermediate goods and services are recovered from consumers in the prices they pay for everything they buy. Today, special access is a \$40 billion per year business, which works out to about \$300 per household, which is almost equal to what they spend on landline telephone service.<sup>1</sup>

### **THE ABUSE OF MARKET POWER IN THE SPECIAL ACCESS MARKET**

This paper shows that about half of the total bill paid to the large incumbent local phone companies for special access service, who control between five-sixths and nine-tenths of the special access market, is the result of the abuse of market power – i.e. setting prices far above costs to earn excess profits.

The large incumbent local phone companies have been able to abuse their market power because the Federal Communications Commission deregulated this market long before there was effective competition. The FCC claimed that competition would quickly erode the immense market power enjoyed by the incumbent local telephone companies in the special access market. The FCC was wrong; competition has not been able to discipline the abuses.

Because of the importance of special access as an intermediate good, the \$20 billion in annual overcharges suppresses a significant amount of economic activity, reducing economic output by at least another \$20 billion. The magnitude of the harm has been growing steadily, so that the cumulative value of economic losses over the past five years is in excess of \$150 billion.

## METHODOLOGY AND DATA

The paper relies on a standard welfare economics analytic framework adopted by liberal and conservative analysts. It uses traditional measures like the Lerner Index, which measures the markup of prices over costs, and the HHI index, which measures market concentration in a way that is directly related to the Lerner Index. The empirical framework adopts the thresholds routinely used by the Department of Justice and the Federal Trade Commission to characterize markets and quantify the harmful impact of the abuse of market power.

Ironically, as the FCC's prediction about the growth of competition failed over the course of the first decade of the 21<sup>st</sup> century, instead of correcting its mistake, it simply stopped gathering and publicly reporting data. Only recently did the FCC agree to compel the companies to provide data on the special access market. Unfortunately, that data is stamped confidential and remains out of view to the public behind a veil of secrecy.

This paper uses only publicly available data to demonstrate the existence and magnitude of the problem. Although we have not had access to or relied on any of the proprietary data, what is visible in the public record strongly supports the analysis contained in this paper.

## FINDINGS

The special access market is far above the level the Department of Justice and the Federal Trade Commission use to define a highly concentrated market. A highly concentrated market is defined as one and HHI of 2500 (the equivalent of four equal-sized firms). The national average HHI for special access is three times that figure – between 7,000 and 8300. In many instances, business have only one special access service provider available. Even where there are two, a duopoly does not provide effective or workable competition to discipline pricing.

Theory predicts that the high level of concentration in the special access market would result in large overcharges and extremely high excess profits; reality conforms to the theory. The paper shows that costs have been plummeting, but, absent competition or effective regulation, prices have not come down. The dominant sellers of special access use their market power to keep prices up and pocket the cost savings as excess profits. The last time the FCC made the cost and profit data available, the local phone companies were earning rates of return almost ten times what the FCC had determined to be reasonable.

The paper shows that the dramatic increase in profits is well predicted by publicly available estimate of three factors that determine the cost of service – dramatically declining equipment costs, a reduction in the costs of capital and declining operating costs. The underlying trends have not changed since the FCC stopped gathering data. Therefore, the problem has only gotten worse since the FCC stopped gathering data.

The evidence of the abuse is reinforced by a comparison between regulated and unregulated prices in the U.S., as well as comparison with international data. There is also a great deal of qualitative evidence in the record of abusive practices, like rates, terms and conditions that lock customers in to incumbent services and freeze out competition. Table ES-1 summarizes the key elements of the analysis demonstrated with publicly available data and supported in the hearing record.

**TABLE ES-1: SUPPORT FOR KEY ELEMENTS OF THE ANALYSIS IN THE HEARING RECORD<sup>1</sup>**

|   |  |
|---|--|
| <p>Basic Conditions<sup>2</sup></p> <p>Franchise Monopoly History<sup>3</sup></p> <p>Few Substitutes<sup>4</sup></p> <p>Inelastic Demand and Supply<sup>5</sup></p> <p>Declining Costs &amp; Rapid Growth<sup>6</sup></p> <p>Market structure</p> <p>Concentration/Inadequate Competition<sup>7</sup></p> <p>Barriers to Entry<sup>8</sup></p> <p>Deployment Costs<sup>9</sup></p> <p>Network Effects<sup>10</sup></p> <p>Incumbent Advantage<sup>11</sup></p> <p>Weakness of Alternatives<sup>12</sup></p> | <p>Perverse incentives</p> <p>Vertical integration, Merger wave<sup>13</sup></p> <p>Regulatory shenanigans<sup>14</sup></p> <p>Anticompetitive Conduct</p> <p>Price<sup>15</sup></p> <p>Price squeeze<sup>16</sup></p> <p>Lock-in Terms and conditions<sup>17</sup></p> <p>Performance</p> <p>Price above costs<sup>18</sup></p> <p>Excess profits<sup>19</sup></p> <p>Macroeconomic Losses<sup>20</sup></p> |
|---|--|

**Sources:**

- <sup>1</sup> All citations are to the record in the *Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593.
- <sup>2</sup> The welfare economic framework animates and described in detail in several of the major discussion, e.g. Declaration of Bridger Mitchell, Attached to Comment of Sprint, January 19, 2010, (Hereafter Mitchell Declaration); WIK-Consult Report, *Ethernet Leased Lines: An International Benchmark*, January 2016, Attached as an Appendix to “Reply Comments of BT Americas,” February 19, 2016, (Hereafter, WIK-study). The WIK study provides a review of the literature that demonstrates the lack of competition and economic harm of abuse of market power in special access services (pp. 45-47); Peter Bluhm with Dr. Robert Loube, *Competitive Issues in Special Access Markets*, National Regulatory Research Institute, January 21, 2009, pp. 25-30, also provides a review of previous studies (Hereafter, NRRI); Reply Comments of the National Association of Utility Consumer Advocates and the Maryland Office of People’s Counsel, February 19, 2016, argues for the traditional approach, p. 6 (Hereafter NASUCA, 2016).
- <sup>3</sup> Declaration of Lee L. Selwyn on behalf of the Ad Hoc Telecommunications Users Committee, January 19, 2010, (Hereafter Selwyn), shows the compelling logic of the deployment of telecommunications network in franchise territories; The technology deployed during the monopoly period, still dominates, Declaration of Willima P. Zarakas and Susan M. Gately, January 27, 2016, Table 2, (Hereafter Zarakas Declaration). The NRRI account of the history of regulation reminds us of the strong and somewhat arbitrary role the regulated franchises played in the development of the industry and the allocation of costs and benefits, pp. 9-19.
- <sup>4</sup> Declaration of Stanley Bessen and Bridger Mitchell, attached to Reply Comments of Sprint, February 19, 2016, ¶ 5. (Hereafter, Bessen Declaration); Reply Declaration of Jonathan Baker, February 19, 2016, ¶¶ 16, 26, 30 (Hereafter Baker Declaration); Declaration of David Sappington, Attached to Sprint Reply Comments, February, 19, 2016, ¶¶ 13, 14 (Hereafter Sappington Declaration); Reply Comments of the National Association of State Utility Consumer Advocates and The New Jersey Division of Ratepayer Counsel, May 31, 2013, p.13 (Hereafter NASUCA 2013).
- <sup>5</sup> Mitchell Declaration, ¶ 65.
- <sup>6</sup> Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, (Hereafter Gately, Comment), pp. ii, 4. (Hereafter, Gately Comment), CostQuest, Wik Study, NRRI, NASUCA, 2016, p. 13; NASUCA, 2013, p. 14.
- <sup>7</sup> NRRI; CostQuest and Windstream, *Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations*, Presentation to FCC Staff, June 4, 2015. attached to *ex parte* filing of Harris, Wiltshire & Grannis, June 8, 2015, (Hereafter, CostQuest), p. 2; Bessen Declaration, ¶¶ 41 *et seq.*, Baker Declaration, ¶44; Sappington Declaration, ¶17; NASUCA, 2016, p.2.
- <sup>8</sup> Selwyn, essential facilities, p. 6, (Hereafter Selwyn); Mitchell Declaration, ¶ 19; NRRI, p. 25; Government Accountability Office, *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, GAO 07-80, p. 6 (Hereafter GAO); Bessen Reply, ¶¶ 23, 28-30.
- <sup>9</sup> CostQuest, p. 2; Mitchell Declaration, ¶¶ 19, 118. Declaration, ¶ 40.
- <sup>10</sup> Selwyn, p. 3; This observation underlies the analysis in CostQuest.
- <sup>11</sup> CostQuest, p. 2.
- <sup>12</sup> Baker Declaration, ¶¶ 31, 32, 22; Bessen Declaration, ¶ 16.
- <sup>13</sup> NRRI, p. 81; Numerous commenters point out that AT&T, as a long distance company demonstrated the severe problem of vertical integration, see e.g. Charles W. McKee, *Special Access: The Unregulated Monopoly*, March 4, 2009, p.5. shows Sprint’s HHI rising from just under 6,000 to just under 8,000 as a result of the acquisition of the two largest long distance carriers (ATT, MCI) by the dominant local exchange companies (SBC, VZ) (Hereafter, McKee); Comments of Sprint, p. 2.
- <sup>14</sup> Reply Comments of Sprint, February 19, 2016, pp. 64-66.
- <sup>15</sup> Gately Declaration, pp. ii, 4. (Hereafter, Gately Comment), Baker Declaration, ¶¶ 63-64. Citation of NECA tariffs (Comments of INCOMPAS, January 19, 2010), p. 10, (hereafter INCOMPAS Comments), Sappington Declaration, ¶ 23.
- <sup>16</sup> NASUCA, 2016, p. 8; McKee, 7; Sprint Comment, pp. ii, 28. Sprint Reply, pp. 49-51.
- <sup>17</sup> Mitchell Declaration, ¶¶ 20, 115, 116, 130-131; Gately Comment, pp. 42-46; NASUCA 2013, p. 26; GAO.
- <sup>18</sup> Gately, Comment, WIK-study, NASUCA< 2013, p. 17.
- <sup>19</sup> McKee, 8-9; Gately, Comment, pp. ii, 4; NASUCA, 2016, p. 3.
- <sup>20</sup> Stephen E. Spiwak, *Economic Benefits of Special Access Price Reductions*, March 2011, (Hereafter, Spiwak), attached to *Letter from Maura Corbett, NoChokePoints Coalition to Marlene H. Dortch*, March q5, 2011; WIK-study; NASUCA, 2016, p. 8.

## I. INTRODUCTION

### THE IMPORTANCE OF SPECIAL ACCESS

As digital technology spreads through society, the communications sector and the Internet become the core of the digital economy and the size and importance of communications grows dramatically.<sup>2</sup> Many activities that took place in physical space now take place in cyberspace and are dependent on communications. By substituting communications as an intermediate factor for physical transportation transaction costs are lowered, increasing economic efficiency. Intermediate goods or services are consumed by businesses to produce the goods and services that they sell to the public.<sup>3</sup> In fact, over the course of the past quarter of a century. The role of intermediate goods in the economy has grown dramatically, from 30% to 40% of the national economy.<sup>4</sup>

Digital communications are not free, however. They have significant costs. The cost of those intermediate good are recovered from consumers in the prices they pay for them.

A good example of this is mobile wireless service, which have become the largest component of the household communications budget.<sup>5</sup> In order for a consumer to place or receive a mobile wireless transmission, the consumer uses all the facilities that connect the transmission from end-to-end. When the consumer originates the transmission, it is carried from the handset to a cell tower. Once it gets to the tower, it must be hauled back to a point where it can connect to the nationwide communications network. The provision of this “middle-mile” link in the communications network is just as necessary to a successful transmission as the “first mile” link to the consumer.

Since the backhaul is to a connection point with the telephone network, high volumes of traffic are aggregated at the cell tower and the backhaul generally takes place over high volume wireline facilities. These facilities that are essential to the communications are needed on both ends of the transmission. Mobile wireless carriers usually purchase these services, called “special access” from wireline incumbent telephone carriers. As such, when the consumer pays her mobile wireless bill she pays the cost of the middle-mile special access backhaul for both the originating and terminating areas.

Moreover, a wide range of businesses and public agencies, including hospitals, schools, libraries, and public safety offices also need secure, dedicated high-speed, high-capacity connections to the wireline communications network to function well. Plain old telephone service does not meet the service and quality needs of an increasing array users and uses that must rely on special access services:

- mobile broadband and phone service,
- small, medium, and large businesses that need much more capacity than a single telephone line,
- branch networks (like ATM’s or gasoline stations) that have many nodes that need to be online all the time, and



- businesses like health care providers, who need to move large quantities of data between their offices, frequently in real time.

There are millions of end-users spread all over the map, so the efficient way to meet their needs is to deploy a ubiquitous network. This is how and why the telephone network was developed.

The costs of special access are passed through to consumers as are all routine business costs. Today, these special access services are a \$40 billion a year business for large incumbent telephone companies. That equals over \$300 per household. As shown below, the abuse of market power in special access is so profound, that half of that figure is an excess cost imposed on consumers who ultimately pay the bill.

### **PASS THROUGH OF SPECIAL ACCESS COSTS**

While that is certainly a large enough number to get our attention, we must ask, “do households actually pay these costs?” The answer is clearly “Yes.” These costs are just like any other commercial costs in the economy. When a farmer pays for fertilizer or the delivery driver gets his paycheck, these are business costs that are recovered in the price of the related goods and services.

In fact, when econometric models of the economy are constructed, they rely on end use prices and values to capture the cost and value of intermediate goods. Since communications are replacing transportation as a central means of commerce, it is instructive to examine how transportation costs have been treated in economic analysis.<sup>6</sup>

Because transportation is well recognized as an intermediate good whose costs are passed through, it is a useful analogy. The Mid-Atlantic Freight Coalition confirms the pass through of transportation costs in a recent report on how transportation and logistics consume a significant portion of household budgets. According to the report,

“the freight logistics system costs... which is spent moving and warehousing goods... factors into the cost of every product we buy. Anything that industry or government can do to make the logistics system more efficient will return benefits in terms of lower cost and greater global competitiveness.”<sup>7</sup>

The importance of communications in economic models is reflected in the high multiplier it is given in the models. In order to build a model of the economy, analysts study the places where a sector purchases inputs and sells output. Typically, the more places that are touched by a sector, the larger its multiplier.

While the recognition that transportation costs are paid by consumers is obvious, the concept is reinforced by the observation that although communications are a small part of the total economy, they have an outsized impact on the cost of goods and services, which is reflected in the way input output models describe the economy. In building these models, the pass-through is assumed.



Transportation is an economic factor of production of goods and services, implying that relatively small changes can have substantial impacts on costs, locations and performance...

Transport also contributes to economic development through [job creation](#) and its derived economic activities... Producers and consumers make economic decisions on products, markets, costs, location, prices which are themselves based on transport services, their availability, costs and capacity.<sup>8</sup>

During the formulation of the National Broadband Plan, it was made clear that broadband communications services play a vital role in the overall U.S. economy.<sup>9</sup> The central role of these services in the economy and the strategic location of special access service, in particular, as a method to providing both fixed and mobile broadband services means that the harm to the economy from the overcharges is magnified. Econometric modelling suggests that the indirect effect on the economy doubles the out-of-pocket burden.

### **PREMATURE DEREGULATION CREATED THE MARKET POWER PROBLEM**

Until the passage of the 1996 Telecommunications Act, special access services were subject to traditional price regulation and later price cap regulation because they were provided almost exclusively by the incumbent local phone company. The 1996 Act declared its intention to promote more competition in the local telecommunications sector, but it did not eliminate the requirement that rates be just, reasonable and nondiscriminatory. It expressed a desire for that outcome to be achieved as a result of competition, rather than regulation.

In 1999, special access was one of the first services to be deregulated by administrative action after the passage of the 1996 Act. Because so little time had passed since the 1996 Act, it was clear that the dominant position of the incumbent local telephone companies had not yet been weakened by competition. The Federal Communications Commission (FCC) decision to deregulate was based on the prediction that competition would grow. Sixteen years later, it is evident that the hope/prediction of competition has not come to pass. The large incumbent local telephone companies still have a stranglehold on the special access market, accounting for at least five-sixths of the special access market and probably closer to nine-tenths.<sup>10</sup>

The FCC totally misunderstood the situation and its analysis was exactly backwards. It worried that the new entrant would game the system, holding back on entry to take advantage of the incumbent network, rather than build their own. The opposite problem was much more important. The incumbents had a huge advantage in a fully deployed network, the economic barriers to entry were immense and the incumbent telephone companies had the strong incentive and ability to manipulate the system to prevent entry and enjoy excess profits. The incumbents understood the immense market power they possessed and they were very skilled at abusing it.

Thus, deregulation of the special access market is a striking example of premature deregulation, a clear case of regulators removing their oversight before competition is strong enough to prevent the abuse of market power. The result is rising prices and excess profits. This analysis puts the total direct pocketbook and indirect macroeconomic costs of in excess of \$150 billion.

One of the great ironies in the debate over the abuse of market power in the special access market is that until 2007, the Commission collected and published data on the costs and profits of special access services. That data clearly showed that competition had failed to restrain pricing abuse. The response of the FCC, whose prediction that competition would be effective had failed, was to stop collecting the data at the behest of those large incumbents.

In addition to the strategy of hiding anticompetitive behavior behind a veil of secrecy, the premature deregulation of special access exhibits another common strategy used to hide its impact. The Commission engaged in technology/vintage bias. It deregulated a specific new technology or facilities deployed after a specific date, claiming that new facilities or technologies will be more competitive. Technology bias introduces two processes that drive deregulation forward much faster than competition develops.

First, incumbents with market power have strong incentives to lock customers into the new services, where prices are unregulated, before competition gets going. Second, asymmetric regulation of transactions in which services are identical is hard to justify. Pressures build to treat like service similarly and the FCC uses this as an excuse to deregulate all services, rather than reconsider whether the original deregulation decision made sense. Addressing the mistake of inconsistency is used to divert attention from the more fundamental error of premature deregulation.

The precise magnitude of the abuse of consumers is shrouded in secrecy because the FCC stopped gathering and publishing data on special access as a routine practice. Nevertheless, the public evidence that is presently available indicates that the pricing abuse continues unabated. Hidden behind a veil of secrecy and embedded in consumers' bills as an intermediate good, the billions of dollars of the abuse of market power in the special access market impose on consumers have not received the attention they deserve.

## II. A FRAMEWORK FOR ANALYZING MARKET PERFORMANCE AND MARKET POWER IN COMMUNICATIONS MARKETS

Although my focus is on the empirical evaluation of the performance of a key communications sector and the impact of specific policy choices, it is necessary to start with a little theory and method to provide a grounding for the empirical analysis. I have to explain why and how I measure market performance and outcomes.

### MARKET PERFORMANCE

This paper takes a traditional and standard approach to economic analysis.<sup>11</sup> The structure of the market is assumed to have a major impact on the conduct of sellers and buyers in the market, which determines its performance to a significant degree. It is not only traditional, but also non-partisan. Progressive/liberal analysts, like Scherer, Ross and Shepherd, and *laissez faire*/conservative analysts, like Posner, Landes and Viscusi et al. all take this approach. I use the concepts to describe industry structure and focus on key aspects of the traditional approach to economic analysis – concentration, price, cost and profits, which are addressed by these analysts.

### A Progressive View of Market Analysis

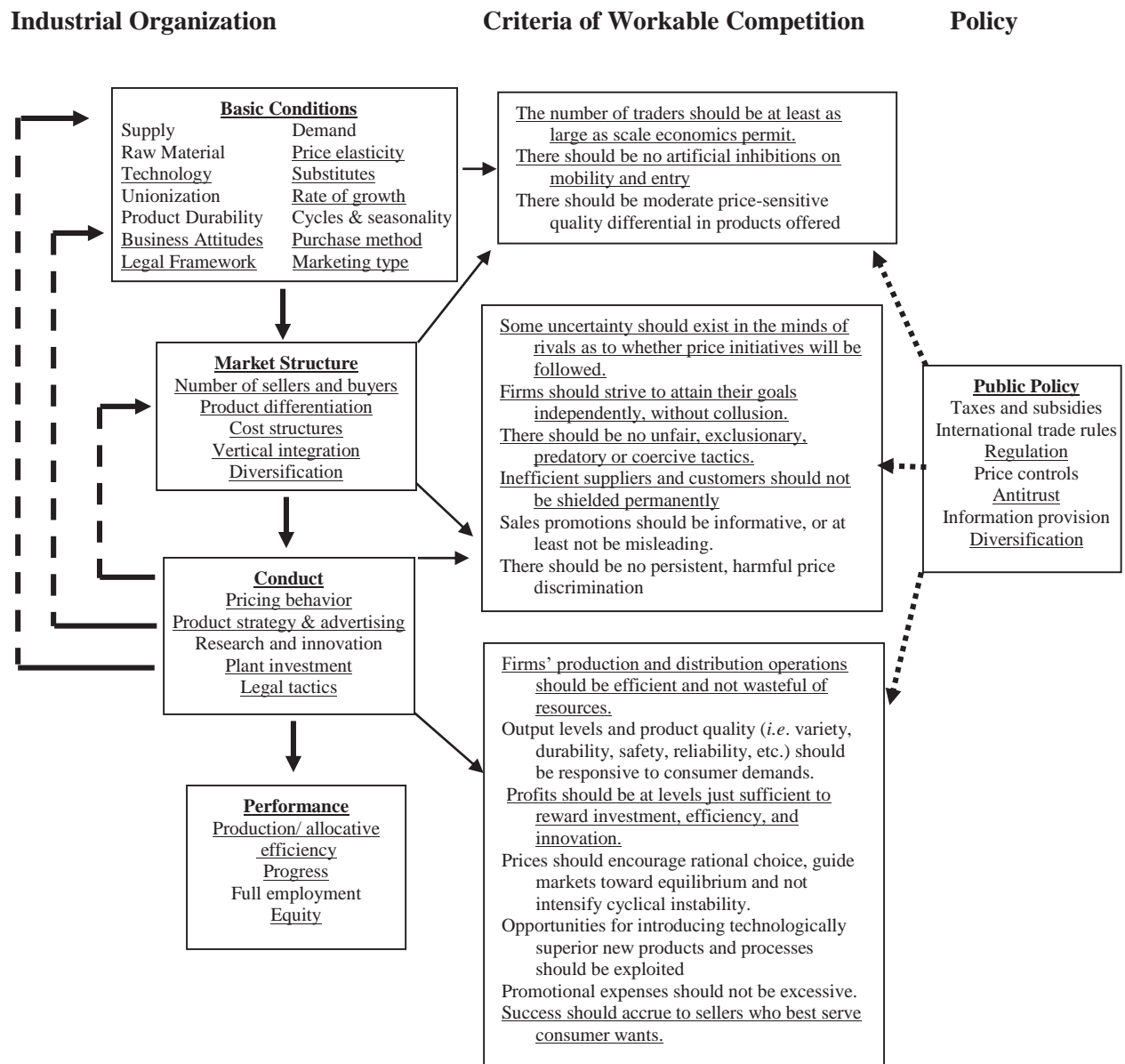
Examining competition, concentration, prices and profits as the focal points of analysis reflects the basic analytic framework that has defined U.S. economic policy in two ways. As shown in Figure II-1, it accepts the prominent role that markets play (the left hand column) and the fact that markets may not perform well (the performance outcomes in the center column), which opens the door to an important role for policy (the right column) to correct market imperfections and failures.

Scherer and Ross argued that “what society wants from producers of goods and services is good performances. Good performance is multidimensional.”<sup>12</sup> They concluded that markets should:

- be efficient in the use of resources and responsive to consumer demand,
- be progressive in taking advantage of science and technology to increase output and provide consumers with superior new products,
- promote equity in the distribution of income so that producers do not secure rewards in excess of what is needed to call forth services supplied and consumers get reasonable price stability and
- facilitate stable full employment of resources, especially human resources.

Scherer and Ross note that “Measuring the degree to which the goals have been satisfied is... not easy, but relevant indicators include price-cost margins, rates of change in output... and price levels.”<sup>13</sup> These are the primary measures analyzed in this paper.

**FIGURE II-1: THE STRUCTURE-CONDUCT-PERFORMANCE PARADIGM**



Source: Gene Kimmelman and Mark Cooper, *Antitrust and Economic Regulation: Essential and Complementary Tools to Maximize Consumer Welfare and Freedom of Expression in the Digital Age*, *Harvard Law & Policy Review*, 2015:9, based on F.M. Sherer & David Ross, *Industrial Market Structure and Economic Performance* (3d ed. 1990), pp. 5, 53–54.

In a workably competitive market firms are constrained by competitive market forces to earn only a “normal” rate of profit. They do not have the power to set prices unilaterally, through collusion or coordination of their conduct to gain excess profits. They are also driven to invest and innovate, to win and hold customers, who have the ability to choose which products to consume. This forces firms to be responsive to consumer needs that evolve over time.<sup>14</sup>

However, where markets are not workably competitive firms can set prices far above costs to obtain excess earnings, slow innovation, restrict consumer choice and deliver inferior goods and service. The concentration of a market – the number of firms and their relative size – is a focal point of market structure analysis. The fewer the number and the larger the size of leading firms, the greater is the ability to set prices up and earn excess profits. At the center of the framework, as shown in Figure II-1 is market structure, defined primarily by the number and size of sellers. Figure II-1 highlights the elements of the structure conduct performance paradigm (underlined text) that will be called on in the remainder of this paper.

### **A Conservative Perspective**

In a seminal 1981 *Harvard Law Review* article,<sup>15</sup> William Landes and Robert Posner, two of the leading Chicago school law and economics practitioners, use similar concepts. They ask “what degree of market power should be actionable? They respond: “the answer in any particular case depends on the interaction of two factors: the size of the market (total volume of sales) and the antitrust violation alleged.”<sup>16</sup>

In a section entitled *Market Share Alone is Misleading*, Landes and Posner argued that antitrust authorities should take market fundamentals into account. In assessing the potential impact of market power “the proper measure will attempt to capture the influence of market demand and supply elasticity on market power.”<sup>17</sup> Their intention was to convince antitrust authorities to ease up on enforcement, but the proposition should work in both directions. Markets that have low elasticities of supply or demand or high total dollar stakes could certainly demand more scrutiny, not less.<sup>18</sup> Infrastructure industries deliver service with the characteristics and, therefore, demand very close scrutiny.

My purpose in this paper is not to debate whether or not the decision to pursue economic and social goals through the market approach is the preferable approach, although I have emphatically argued elsewhere that progressive capitalism is.<sup>19</sup> Here, I take the market paradigm as given and evaluate the performance of the communications markets in terms of the goals and processes of the market model.

Although I have relied on publicly available data, the hearing record contains strong evidence that supports each of the main elements of my analysis, as summarized in Table II-1. The specific details are redacted from the record, but the substantive conclusions are crystal clear. Table II-1 does not rely on the general statements of companies. It cites only statements and reports of experts or specific empirical facts placed in the record. It shows that the analytic framework laid out in Figure II-1 is not only apt, but the key elements that are used to identify and assess the extent of the failure of competition and the abuse of market power in the special access market are well documented in the record of this proceeding.

**TABLE II-1: SUPPORT FOR KEY ELEMENTS OF THE ANALYSIS IN THE HEARING RECORD<sup>1</sup>**

|   |  |
|---|--|
| <p>Basic Conditions<sup>2</sup></p> <p>Franchise Monopoly History<sup>3</sup></p> <p>Few Substitutes<sup>4</sup></p> <p>Inelastic Demand and Supply<sup>5</sup></p> <p>Declining Costs &amp; Rapid Growth<sup>6</sup></p> <p>Market structure</p> <p>Concentration/Inadequate Competition<sup>7</sup></p> <p>Barriers to Entry<sup>8</sup></p> <p>Deployment Costs<sup>9</sup></p> <p>Network Effects<sup>10</sup></p> <p>Incumbent Advantage<sup>11</sup></p> <p>Weakness of Alternatives<sup>12</sup></p> | <p>Perverse incentives</p> <p>Vertical integration, Merger wave<sup>13</sup></p> <p>Regulatory shenanigans<sup>14</sup></p> <p>Anticompetitive Conduct</p> <p>Price<sup>15</sup></p> <p>Price squeeze<sup>16</sup></p> <p>Lock-in Terms and conditions<sup>17</sup></p> <p>Performance</p> <p>Price above costs<sup>18</sup></p> <p>Excess profits<sup>19</sup></p> <p>Macroeconomic Losses<sup>20</sup></p> |
|---|--|

**Sources:**

- <sup>1</sup> All citations are to the record in the *Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593.
- <sup>2</sup> The welfare economic framework animates and described in detail in several of the major discussion, e.g. Declaration of Bridger Mitchell, Attached to Comment of Sprint, January 19, 2010, (Hereafter Mitchell Declaration); WIK-Consult Report, *Ethernet Leased Lines: An International Benchmark*, January 2016, Attached as an Appendix to “Reply Comments of BT Americas,” February 19, 2016, (Hereafter, WIK-study). The WIK study provides a review of the literature that demonstrates the lack of competition and economic harm of abuse of market power in special access services (pp. 45-47); Peter Bluhm with Dr. Robert Loube, *Competitive Issues in Special Access Markets*, National Regulatory Research Institute, January 21, 2009, pp. 25-30, also provides a review of previous studies (Hereafter, NRRI); Reply Comments of the National Association of Utility Consumer Advocates and the Maryland Office of People’s Counsel, February 19, 2016, argues for the traditional approach, p. 6 (Hereafter NASUCA, 2016).
- <sup>3</sup> Declaration of Lee L. Selwyn on behalf of the Ad Hoc Telecommunications Users Committee, January 19, 2010, (Hereafter Selwyn), shows the compelling logic of the deployment of telecommunications network in franchise territories; The technology deployed during the monopoly period, still dominates, Declaration of Willima P. Zarakas and Susan M. Gately, January 27, 2016, Table 2, (Hereafter Zarakas Declaration). The NRRI account of the history of regulation reminds us of the strong and somewhat arbitrary role the regulated franchises played in the development of the industry and the allocation of costs and benefits, pp. 9-19.
- <sup>4</sup> Declaration of Stanley Bessen and Bridger Mitchell, attached to Reply Comments of Sprint, February 19, 2016, ¶ 5. (Hereafter, Bessen Declaration); Reply Declaration of Jonathan Baker, February 19, 2016, ¶¶ 16, 26, 30 (Hereafter Baker Declaration); Declaration of David Sappington, Attached to Sprint Reply Comments, February, 19, 2016, ¶¶ 13, 14 (Hereafter Sappington Declaration); Reply Comments of the National Association of State Utility Consumer Advocates and The New Jersey Division of Ratepayer Counsel, May 31, 2013, p.13 (Hereafter NASUCA 2013).
- <sup>5</sup> Mitchell Declaration, ¶ 65.
- <sup>6</sup> Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, (Hereafter Gately, Comment). pp. ii, 4. (Hereafter, Gately Comment), CostQuest, Wik Study, NRRI, NASUCA, 2016, p. 13; NASUCA, 2013, p. 14.
- <sup>7</sup> NRRI; CostQuest and Windstream, *Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations*, Presentation to FCC Staff, June 4, 2015. attached to *ex parte* filing of Harris, Wiltshire & Grannis, June 8, 2015, (Hereafter, CostQuest), p. 2; Bessen Declaration, ¶¶ 41 *et seq.*, Baker Declaration, ¶44; Sappington Declaration, ¶17; NASUCA, 2016, p.2.
- <sup>8</sup> Selwyn, essential facilities, p. 6, (Hereafter Selwyn); Mitchell Declaration, ¶ 19; NRRI, p. 25; Government Accountability Office, *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, GAO 07-80, p. 6 (Hereafter GAO); Bessen Reply, ¶¶ 23, 28-30.
- <sup>9</sup> CostQuest, p. 2; Mitchell Declaration, ¶¶ 19, 118., Declaration, ¶ 40.
- <sup>10</sup> Selwyn, p. 3; This observation underlies the analysis in CostQuest.
- <sup>11</sup> CostQuest, p. 2.
- <sup>12</sup> Baker Declaration, ¶¶ 31, 32, 22; Bessen Declaration, ¶ 16.
- <sup>13</sup> NRRI, p. 81; Numerous commenters point out that AT&T, as a long distance company demonstrated the severe problem of vertical integration, see e.g. Charles W. McKee, *Special Access: The Unregulated Monopoly*, March 4, 2009, p.5. shows Sprint’s HHI rising from just under 6,000 to just under 8,000 as a result of the acquisition of the two largest long distance carriers (ATT, MCI) by the dominant local exchange companies (SBC, VZ) (Hereafter, McKee); Comments of Sprint, p. 2.
- <sup>14</sup> Reply Comments of Sprint, February 19, 2016, pp. 64-66.
- <sup>15</sup> Gately Declaration, pp. ii, 4. (Hereafter, Gately Comment), Baker Declaration, ¶¶ 63-64. Citation of NECA tariffs (Comments of INCOMPAS, January 19, 2010), p. 10, (hereafter INCOMPAS Comments), Sappington Declaration, ¶ 23.
- <sup>16</sup> NASUCA, 2016, p. 8; McKee, 7; Sprint Comment, pp. ii, 28. Sprint Reply, pp. 49-51.
- <sup>17</sup> Mitchell Declaration, ¶¶ 20, 115, 116, 130-131; Gately Comment, pp. 42-46; NASUCA 2013, p. 26; GAO.
- <sup>18</sup> Gately, Comment, WIK-study, NASUCA< 2013, p. 17.
- <sup>19</sup> McKee, 8-9; Gately, Comment, pp. ii, 4; NASUCA, 2016, p. 3.
- <sup>20</sup> Stephen E. Spiwak, *Economic Benefits of Special Access Price Reductions*, March 2011, (Hereafter, Spiwak), attached to *Letter from Maura Corbett, NoChokePoints Coalition to Marlene H. Dortch*, March q5, 2011; WIK-study; NASUCA, 2016, p. 8.



## THE WELFARE ECONOMIC OF MARKET POWER

The analytic framework, focused on the extent of competition, which determines whether market power exists, frames the empirical questions – the key pocketbook issues. How is the communications market performing from the point of view of key goals? Was there enough competition in the communications sector to prevent pricing abuse as the regulatory oversight was relaxed?

### Basic Conceptualization

Given that the framework provides a potent tool for analyzing the special access market, it is important to briefly explain the fundamental welfare economic principles that underlie the structure conduct performance paradigm. The incentive for dominant firms to raise prices and increase profits is basic to a balanced economic evaluation of market performance and public policy. When a firm with market power raises prices, it loses some sales (determined by the elasticity of demand). Why would it risk that? It will do so if the increase in revenue from the remaining sales is larger than the lost revenue from foregone sales, net of costs. The framing of the answer, as shown graphically in Figure II-2, appears in every basic textbook on economics, including all of the sources cited above.

**FIGURE II-2: WELFARE EFFECTS OF THE ABUSE OF MARKET POWER**



Source: F. M. Scherer, F. M. and David Ross, *Industrial Market Structure and Economic Performance* (Boston: Houghton Mifflin, 1990). pp. 34; William M. Landes, Robert A. Posner, "Market Power in Antitrust Cases," *Harvard Law Review*, 94 (5), p. 90; Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 79; William G. Shepherd, *The Economics of Industrial Organization*, 1985, p. 31.

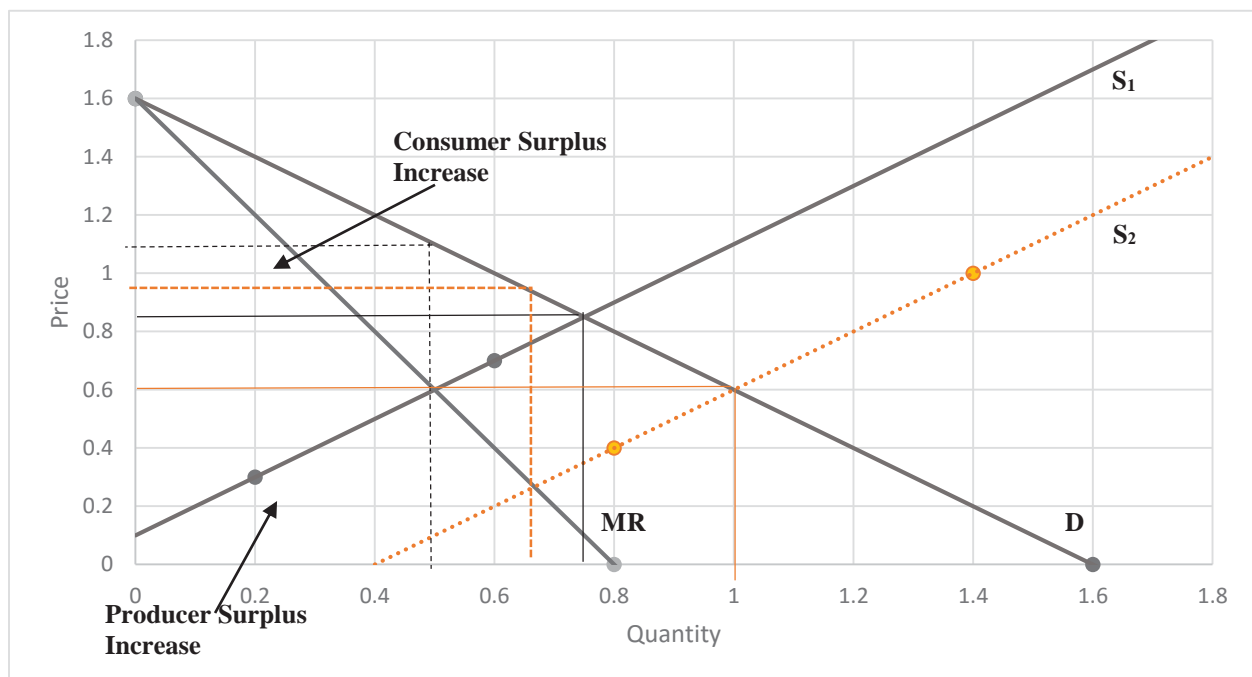
As Figure II-2 shows, in a competitive market, firms must sell at the competitive price, which "shares" the economic surplus between the consumer and the producer. Firms with market power raise prices to the point where the marginal revenue equals marginal costs. This maximizes profits. This lowers consumer surplus, but increases producer surplus. It creates



some deadweight loss (inefficiency) and the total social surplus is diminished, but that is not the concern of the producers. They care only about their profits.<sup>20</sup>

Figure II-3 shows the pattern of change in a competitive market when the cost of producing goods declines through, for example, technological progress. As the supply curve shifts, the total surplus expands. Both consumers and producers enjoy an increase in surplus. The distribution of the gains (called the incidence and frequently analyzed as tax incidence) is determined by the elasticities of demand and supply. If demand were more elastic, consumers would get a larger share (producers would compete harder to keep their business by passing through more of the cost savings).<sup>21</sup> The abuse of market power in the context of falling costs increases the distortion in the distribution of surplus between consumers and producers.

**FIGURE II-3: THE INCIDENCE OF TECHNOLOGICAL PROGRESS ON THE SUPPLY-SIDE**



Source: A graph focusing on the division of surplus and the most complete discussion can be found in Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 77-78; William G. Shepherd, *The Economics of Industrial Organization*, 1985, pp. 19-21; F. M. Scherer, F. M. and David Ross, *Industrial Market Structure and Economic Performance* (Boston: Houghton Mifflin, 1990). pp. 24-29.

## The Communications Sector

The desire of the 1996 to introduce greater competition into the communications sector and decades of rhetoric about the superiority of competition have led to neglect of important realities in communications markets. The harm that unregulated market power can impose on consumers was ignored amid the euphoric praise of competition.

Infrastructure industries deliver service with relatively low elasticities. In fact, they can be considered “necessities” since they have a combination of low price elasticity and moderate income elasticity.<sup>22</sup> The low price elasticity means it is difficult to go without communications or

find good substitutes. The moderate income elasticity means the good commands a significant part of the household budget all the way up and down the income distribution, but the percentage declines as income rises. The important role of communications in the broader economy and for households magnifies the ability to exercise and the impact of the abuse of market power.<sup>23</sup>

The communications sector provides a fertile ground for the abuse of market power. Its size, great importance to the functioning of the economy and underlying economic characteristics suggest that the existence and persistence of market power is a particular problem and has made it the target of a great deal of public policy.<sup>24</sup> Elasticities of demand and supply are low compared to other sectors. Deployment of facilities to compete with an incumbent communications network is costly and difficult. Network effects, the ability to reach large numbers of customers to make the network more valuable to each individual customer, are important.

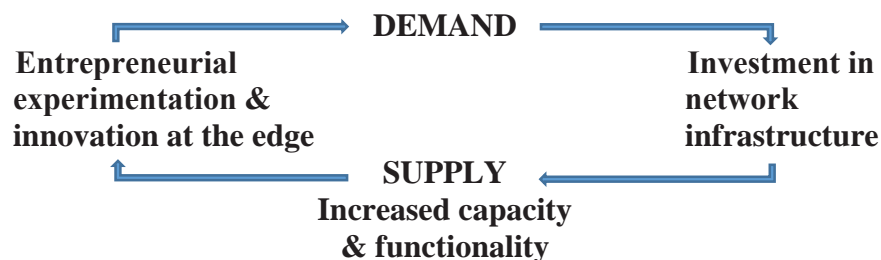
Fundamental economies of scale, scope and network effects that the communications sector exhibits would have been an obstacle to competition under any circumstances. But, the 1996 Act's competition policy was launched from a condition in which monopoly power existed, having been built behind decades of franchise monopoly that shielded the incumbents from competition and endowed them with a vast communications network whose sunk costs had been paid by captive consumers. The economic fundamentals combined with a ubiquitous network deployed behind the protective wall of a franchise monopoly to give the incumbent local telephone companies an insurmountable advantage. The difficulty of overcoming the advantage that had been bestowed on the incumbents was vastly underestimated.

## THE UNIQUE ECONOMICS OF THE DIGITAL REVOLUTION

### The Importance of the Virtuous Cycle

The economics of the abuse of market power and the broader view of market imperfections and market success are magnified by contemporary digital technologies. The FCC argued in the National Broadband Plan, and a wide range of analysts agree, that a “virtuous” cycle typifies the digital communications network (see Figure II-4).<sup>25</sup>

FIGURE II-4: THE VIRTUOUS CYCLE OF INNOVATION AND INVESTMENT

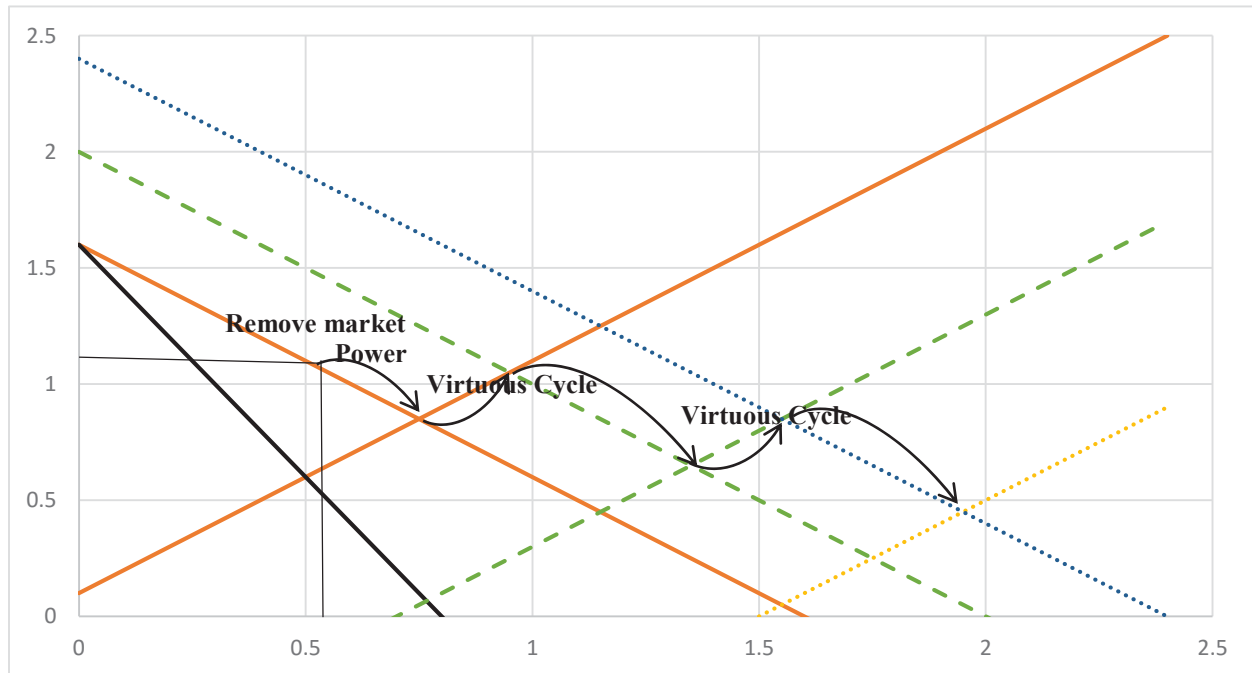


Source: Mark Cooper, 2015, “The ICT Revolution in Historical Perspective: Progressive Capitalism as a Response to Marxist Complaints, Piketty Pessimism and Free Market Fanaticism About the Deployment Phase of the Digital Economy,” *Telecommunications Policy Research Conference*, September.

As I described it in a recent paper, the virtuous cycle framework posits that innovation and investment at the edge of the network are inextricably linked to innovation and investment in the communications network itself in a recursive, reinforcing feedback loop. Development of applications, devices, and content stimulates demand for communications that drives innovation and investment in the supply of communications network capacity and functionality. In turn, improving network functionalities and expanding capacity make new applications possible, which stimulates new demand and allows the cycle to repeat.<sup>26</sup> The virtuous cycle is the particularly powerful engine at the heart of the digital industrial revolution

The welfare economics of the virtuous cycle can be explained by extending the analysis in Figure II-4 above in two directions, as shown in Figure II-5. There is a shift in both the demand curve and the supply curve. The process unfolds in a recursive pattern that has been sustained for several decades.

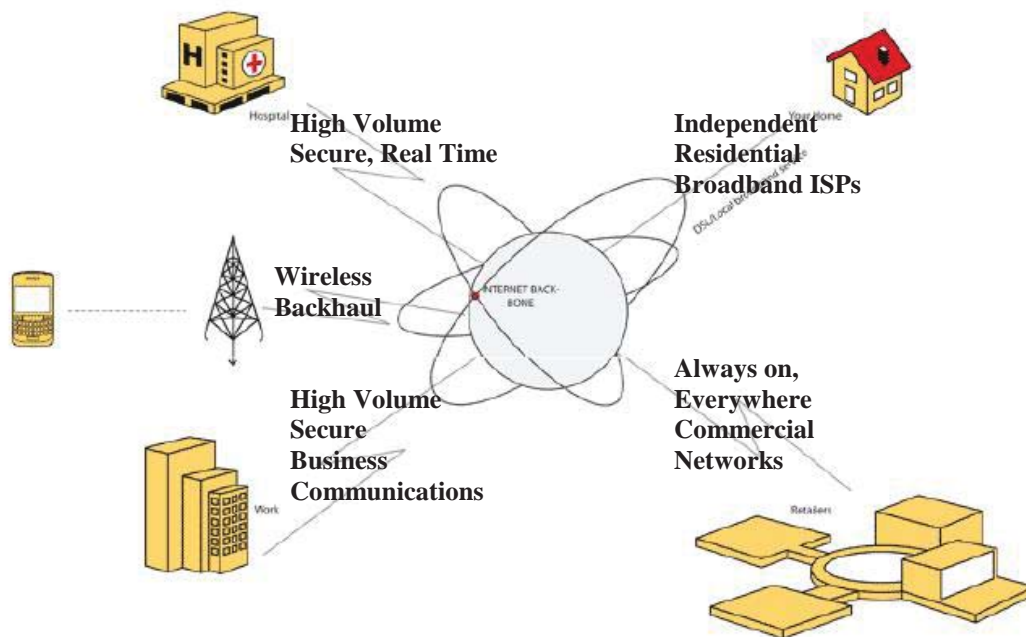
**FIGURE II-5: DYNAMIC WELFARE EFFECTS OF THE VIRTUOUS CYCLE IN A COMPETITIVE MARKET**



Special access stands at a key choke point that threatens the virtuous cycle, as shown in Figure II-6. Here it is critical to keep the product and geographic aspect of market definition in clear view. Cable modem service dominates the residential broadband Internet access service (BIAS) market. However, the best effort (BIAS) service that meets the needs of residential customers does not meet the needs of business customers for secure, high quality high speed Internet connectivity. The geographic aspect is important, too. The special access market is very much a build-by-building (hyperlocal) product. Cable has not entered into the market for dedicated point-to-point service. It has not pulled dedicated lines to businesses. The importance of eliminating the abuse of market power in the special access market, which is dominated by the incumbent local telephone companies, is highlighted at this moment because the digital

revolution is penetrating deeply throughout society. This is the period when the synergies of the technological revolution spread across the economy.<sup>27</sup> The full adoption of digital communications by the millions of businesses that need special access can be hampered and distorted by the abuse of market power by the abuse of market power.

**FIGURE II-6: SPECIAL ACCESS IS CENTRAL IN THE SYNERGY PHASE OF THE DIGITAL REVOLUTION**



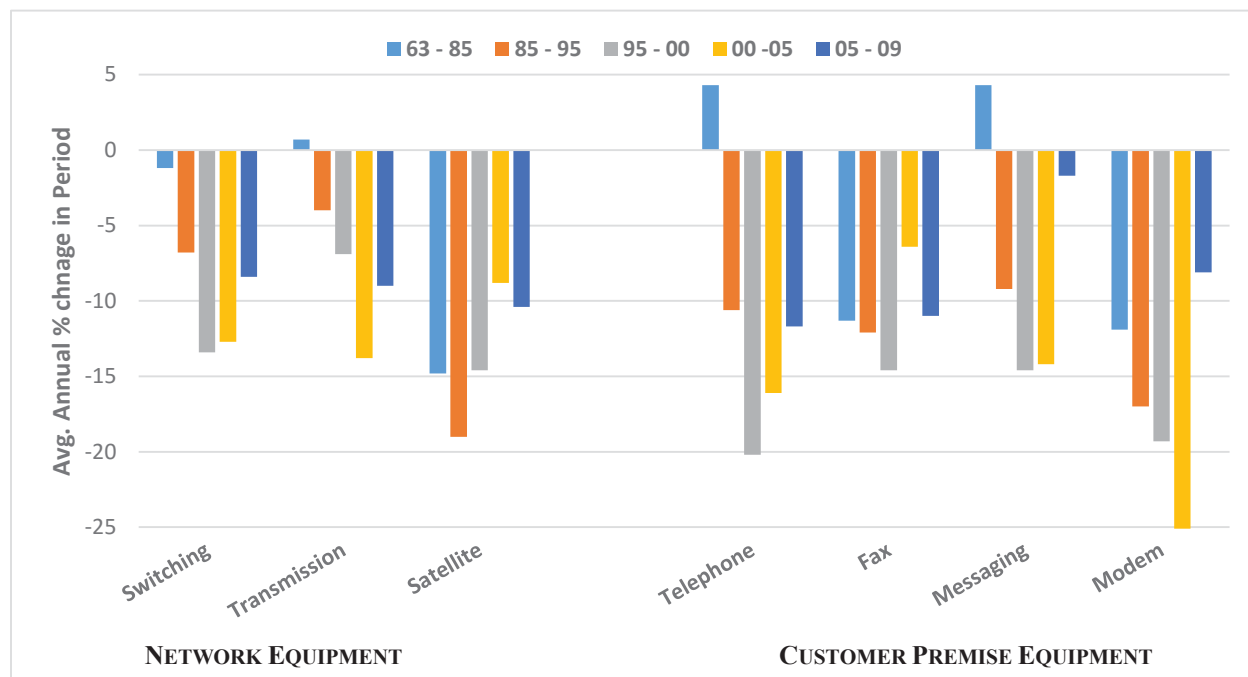
## The Immense Power of the Third Industrial Revolution

It is obvious to even the most casual observer that a major technological revolution is taking place in the communications sector. While many aspects of that revolution can be examined, the one that is most central, given the analysis of market performance, is the movement of costs in the economy.

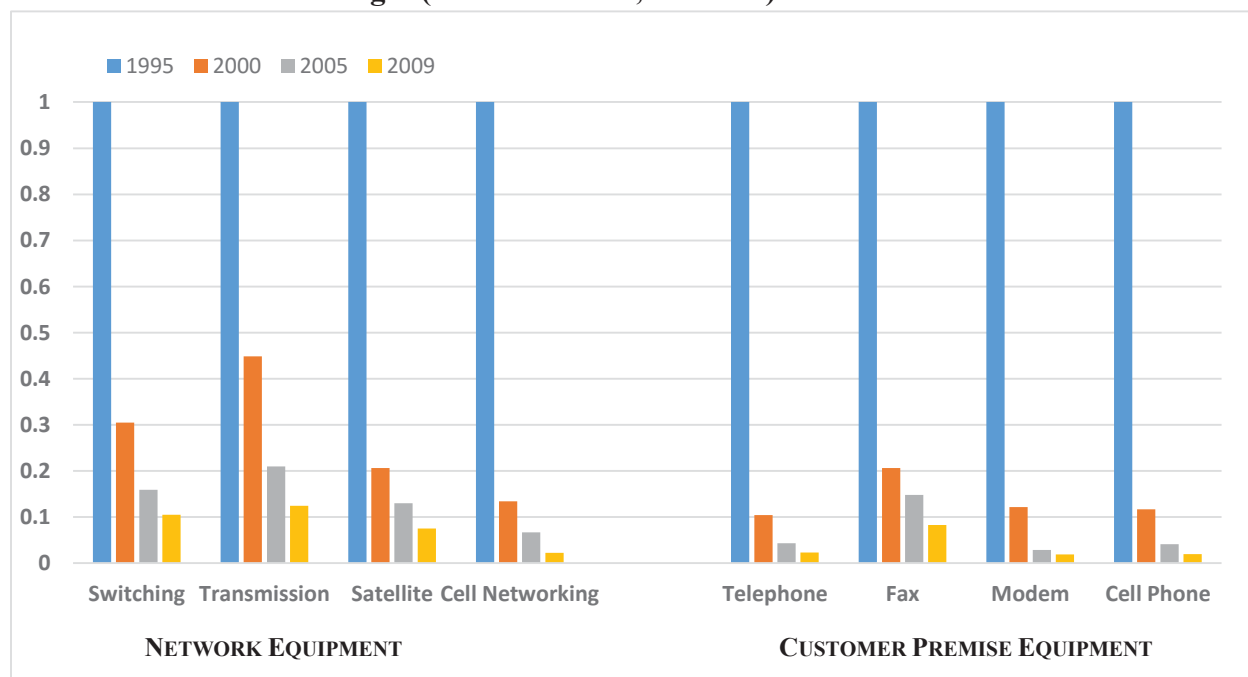
As Figure II-7 shows, there has been a dramatic decline in costs. Figure II-6 shows two key categories of costs for communications equipment, network equipment and customer premise equipment. It is important to keep in mind that these are estimates of input costs, not the prices charged to consumers. The extent to which the cost reductions are passed through depends on the market structure. The upper graph shows the average annual changes over three periods of importance to the historical analysis – prior to 1984, which is a period before the break-up of AT&T and the deregulation of cable; the decade before the passage of the Telecommunications Act of 1996, and the years since the 1996 Act. The lower graph shows the cumulative price changes since the 1996 Act, adding in the cost of cellular equipment.

**FIGURE II-7: DECLINING EQUIPMENT COSTS IN THE DIGITAL REVOLUTION**

**Long Term Annual Rates of change**



**Post- 1996 Act Price Changes (Index of Prices, 1995 = 1)**



Sources: David M Byrne and Carol A. Corrado, *Prices for Communications Equipment: Rewriting the Record*, February 2012, Recent Trends in Communications Equipment Prices, *FEDS Notes*, September 29, 2015. The Anticompetitive Pattern of Abuse in the Communications Sector.

The authors of the price indices point out the importance of investment in communications equipment, noting that “IT capital services have historically made outsized contributions to labor productivity. Consequently, greater IT capital investment augurs well for future productivity gains.”<sup>28</sup> They then note the strength of the revolution in terms of declining prices.

Last with respect to the debate about whether the impetus for the “IT Revolution” has petered out, we observe that prices for communications equipment have continued to fall rapidly in recent years. Price declines accelerated significantly in the mid-1980s and again in the mid-1990s. Since that time, prices for communications equipment – a general purpose technology central to the economy – have been falling 11 percent on average for 20 years running, and price declines have shown no sign of slowing.<sup>29</sup>

In an age when we have become used to a doubling of capacity on silicon chips every eighteen months (Moore’s Law), we may have become somewhat indifferent to a rate of decline that cuts prices in half every 76 months, but placed in the context of industrial revolutions, this rate of decline is truly historic. This is a rate of decline that is substantially higher (two to three times) than products that have come to symbolize previous industrial revolutions – cotton cloth, light, heat power, automobiles.<sup>30</sup> Following from the conceptual analysis, we would expect to see a significant part of these cost savings passed through to consumers, if the markets for communications services are competitive. In Section IV, I show that they have not because of the abuse of market power.

### III. EMPIRICAL ANALYSIS OF MARKET STRUCTURE AND MARKET POWER

Having established the framework for analyzing market structure, I next turn to the empirical measures used. While many aspect of the market structure can affect conduct, one of the most important and frequently studied market structural characteristics is the nature and extent of competition in the market. In particular, the number and relative size of producers – the degree of concentration – is seen as a major determinant of conduct and performance. While the performance of the market can be evaluated in many ways, one of the most important and frequently analyzed measures of performance are the prices paid by consumers. In particular, the relationship between prices and profits of the sellers has been a focal point of attention.

The key market characteristics identified above, concentration, price, cost and profits have been captured in two indices that are interrelated – the Lerner Index (L) and the Herfindahl-Hirschmann index (HHI). Table III-1 presents a series of key formulas that have been developed by both progressive and conservative economists to analyze industry structure and the exercise of market power.

**TABLE III-1: KEY MATHEMATICAL FORMULAS IN THE ANALYSIS OF MARKET STRUCTURE AND MARKET POWER**

#### Lerner Index Traditional Formulation

$$L = \frac{(P - MC)}{P} = \frac{1}{E^d}$$

Where: P = price, MC = marginal cost, E = the market elasticity of demand

#### Landes and Posner Formulation of the Lerner Index

$$L = \frac{(P - C)}{P} = \frac{1}{E^d} = \frac{S_i}{e_m^d + e_j^s (1 - S_i)}$$

where:  $S_d$  = the market share of the dominant firm,  $e_m^d$  = elasticity of demand in the market  
 $e_j^s$  = elasticity of supply of the competitive fringe,  $s_i$  = market share of the fringe

#### The HHI Index

$$HHI = \sum_{i=1}^n s_i^2 * 10,000$$

#### Relating the HHI to Market Power through the Lerner Index

$$S_1 \frac{(P^1 - MC^1)}{P^1} + S_2 \frac{(P^2 - MC^2)}{P^2} + \dots + S_n \frac{(P^n - MC^n)}{P^n} = \frac{HHI}{10000 * E^d}$$

Scherer, F. M. and David Ross, *Industrial Market Structure and Economic Performance* (Boston: Houghton Mifflin, 1990). pp. 70-71; William M. Landes and Richard A. Posner, "Market Power in Antitrust Cases," *Harvard Law Review* (94), 1981; Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 149

### OPERATIONALIZING KEY ANALYTIC CONCEPTS

The key market characteristics identified above, concentration, price, cost and profits have been captured in two indices that are interrelated – the Lerner Index (L) and the Herfindahl-



Hirschmann index (HHI). The Lerner index is a measure of how much prices exceed costs in the market. Scherer and Ross describe the attractiveness of the Lerner index as follows:

Its merit is that it directly reflects the allocatively inefficient departure of price from marginal cost associated with monopoly. Under pure competition, [The Lerner Index equals zero (LI)=0]. The more a firm's pricing departs from the competitive norm, the higher is the associated Lerner Index value.<sup>31</sup>

In words, the following formula says that the Lerner Index is a ratio. It is the markup above cost (P-MC) divided by the price. The Lerner Index is frequently expressed as the inverse of the elasticity of demand. If consumers have the ability to switch to other products, sellers will not be able to increase the price above costs significantly, since they will lose their customers.

$$L = \frac{(P - MC)}{P} = \frac{1}{E^d}$$

Where: P = price,  
MC = marginal cost  
E = the market elasticity of demand

While the Lerner Index is attractive from a theoretical point of view, there are generally uncertainties about the estimation of marginal cost. Even in antitrust proceedings where data is subject to subpoena, it is difficult to calculate.<sup>32</sup> Therefore, economists frequently consider several other measures of monopoly profits that are the aggregate manifestation or the result of the underlying pricing abuse.

One long-run approximation to the Lerner index is the ratio of supranormal profits to normal cost and profits. The rate of profit is calculated by starting with revenues and subtracting operating costs, depreciation and capital costs, which is then divided by the assets invested. However, while profit margins are readily available, they present some problems, because the cost of capital is not recorded in a firm's accounting statements. It can only be imputed with difficulty. Economists seeking to avoid this difficulty have usually opted for second-best surrogates like the accounting rate of return on stockholders' equity or capital, before interest. To be most instructive, these estimates must be compared to a normal rate of return. This involves finding a set of companies chosen to be comparable, but lacking in market power, which is itself a challenging task.

Landes and Posner rendered the Lerner Index in a somewhat different formulation that is useful in the analysis below. In evaluating mergers and market structures, it is necessary (and preferable) to consider the market power of individual firms and sum these across all firms in the market.

In words, the following formula says that the markup of price over cost will be directly related to the market share of the dominant firm and inversely related to the ability of consumers to reduce consumption (the elasticity of demand) and the ability of other firms (the competitive fringe) to increase output (the elasticity of this supply).

$$L = \frac{(P - C)}{P} = \frac{1}{E^d} = \frac{S_i}{e_m^d + e_j^s (1 - S_i)}$$

where:

$S_d$  = the market share of the dominant firm

$e_m^d$  = elasticity of demand in the market

$e_j^s$  = elasticity of supply of the competitive fringe

$s_i$  = market share of the fringe.

There was an extensive debate over this formulation that was resolved with recourse to the Herfindahl-Hirschmann index (HHI).<sup>33</sup> The HHI is a measure of market concentration. Viscusi, et al., note that “The HHI has the advantage of incorporating more information about the size distribution of sellers than the simple concentration ratio does.”<sup>34</sup> It is calculated by taking the market share of each firm in the market, squaring it and summing across all firms. The index is converted to a whole number by multiplying by 10000.

$$HHI = \sum_{i=1}^n s_i^2 * 10,000$$

where  $s$  = the market share of each individual firm expressed as a ratio.

The HHI and the Lerner index can be directly related in the analysis of market power. As Viscusi et al. put it “the HHI is directly related to a weighted average of firms’ price-cost margins for the Cournot [oligopoly] solution.”<sup>35</sup>

In words, the following formula says that the markup of price over cost in a market will be directly related to the market share of the firms (as captured by the HHI) and inversely related to the ability of consumers to reduce consumption (the elasticity of demand).

$$S_1 \left[ \frac{(P^1 - MC^1)}{P^1} \right] + S_2 \left[ \frac{(P^2 - MC^2)}{P^2} \right] + \dots + S_n \left[ \frac{(P^n - MC^n)}{P^n} \right] = \frac{HHI}{10000 * E^d}$$

Jerry Hausman, in a volume on *The Economics of New Goods*, published by a very mainline press (University of Chicago in a series for the National Bureaus of Economic Research), argued that:

the implicit assumption... that price equals marginal cost need not hold in most new product situations. Combined with the fact that most new-introductions are undertaken by multiproduct firms with existing competing brands... I adopt the most widely used solution concept for my analysis... set the price for a given product according to the “marginal revenue equals marginal cost” rule.<sup>36</sup>

He estimated the demand elasticity at -2.0 for the product he was studying and estimated that market power had consumed 15% of the increase in consumer surplus that could have resulted from the introduction of a new product in a competitive market.<sup>37</sup>

## CONCERNS ABOUT MARKET POWER

Calculating the HHI tells us how concentrated a market is, but not whether it is “too” concentrated, which would result in the abuse of market power. The identification of when a small number of firms can exercise market power is not a precise science. Nevertheless, when the number of significant firms falls into the single digits there is cause for concern.

Up to six firms one has oligopoly, and with fifty firms or more of roughly equal size one has competition; however, for sizes in between it may be difficult to say. The answer is not a matter of principle but rather an empirical matter.<sup>38</sup>

The analysis of market structure conducted by the Department of Justice and Federal Trade Commission in the course of merger reviews is particularly relevant for two reasons. First, the anti-trust laws are the primary statutes that are intended to prevent abuse of market power in the economy. Second, merger review is one of the few areas where the antitrust laws empower the agencies to be proactive in their job of ensuring the economy remains competitive. Restraints on trade are the bread and butter of antitrust policy and mergers are ideal tools to restrain trade by removing competitors, so here antitrust authorities can act to prevent abuse, rather than try to clean it up after it has imposed harm.

The *Merger Guidelines* issued by the Department of Justice (DOJ) and the Federal Trade Commission (FTC) describe the concern of the antitrust authorities with market power as follows. “Market power to a seller is the ability profitably to maintain prices above competitive levels for a significant period of time.”<sup>39</sup> The *Merger Guidelines* recognize that market power can be exercised with coordinated, or parallel activities and even unilateral actions in situations where there are small numbers of market players.<sup>40</sup>

In adopting this framework to evaluate market structure it is important to note at the beginning that the *Merger Guidelines* only provide the tools for analysis, they do not dictate the policy that should be pursued. Antitrust prefers competition as the policy tool to correct or prevent a specific market failure – the abuse of market power. There are other market imperfections that antitrust does not address. There are also situations in which market conditions will not support sufficient competition to prevent the abuse of market power. Therefore, competition and antitrust cannot solve the problem; regulation is necessary.<sup>41</sup>

The communications sector is a very good example of an area of the economy in which antitrust has been deemed to be inadequate. Regulation has been deemed necessary because the market structure tends to result in a very small number of very large firms dominating the market and because communications is a large sector that is important, *i.e.*, it has a big impact on a wide range of activities. The two factors that Landes and Posner identified as requiring close attention, elasticities and size, point toward greater oversight, not less. As I argued in a recent article, under these circumstances antitrust and regulation go hand-in-hand.

The broad purposes and functions of antitrust and regulation in the economy are magnified when applied to the communications sector. From an economic point of view, the communications sector is one of the most important resource systems in an advanced economy, since market efficiency depends on the ability to gather and process information.<sup>42</sup>

Communications networks possess two characteristics that make them ideal candidates for economic regulation—their infrastructural nature and economies of scale. Kahn identified these characteristics in his seminal work, *Economics of Regulation*. Making the case for economic regulation, Kahn pointed to the fact that because communications networks exhibit economies of scale, the market will support only a small number of large firms compared to other sectors of the economy.<sup>43</sup> In addition, because of the essential inputs they provide, they influence the growth of other sectors and the economy.<sup>44</sup> Kahn added two other characteristics: “natural monopoly” and “for one or another of many possible reasons, competition does not work well.”<sup>45</sup> Although Kahn was skeptical of the monopoly rationale for regulation, he later argued that the nature and extent of competition is an empirical question:

The question is not simply one of *how much* competition to allow—how much freedom of entry or independence of decision making with respect to price, investment, output, service, promotional effort, financial, and the like. It is a question also of what, in the particular circumstances of each regulated industry, is the proper *definition*, what are the *prerequisites*, of effective competition.<sup>46</sup>

Of course, as noted above, Sherer and Ross also believe that the implementation of policy in pursuit of competition as the desired structure for markets must reflect the fundamentals of economic structure and the reality of markets.

## CHARACTERIZING MARKETS

Under the *Merger Guidelines*, the consideration of proposed mergers begins with a straightforward analysis of market concentration (see Table III-2). For most of the period of this analysis (*i.e.* until the revision of the *Guidelines* in 2010), an HHI above 1,800 was considered a highly concentrated market. A market with 6 equal-sized competitors would have an HHI of 1,667. A market with an HHI below 1000 was considered unconcentrated. A market with ten equal-sized competitors would have an HHI of 1,000. It is competitive. A market was considered moderately concentrated when it fell between the highly concentrated and unconcentrated thresholds. It is one that exhibited an HHI between 1,000 and 1,800. Under the recently revised guidelines, the unconcentrated threshold was raised to 1,800, while the highly concentrated threshold was raised to 2,500, or the equivalent of 4-equal sized firms.

Not only can the HHI be directly related to the Lerner Index, as noted above, it also has an easy interpretation.<sup>47</sup> These thresholds (old and new) correspond to long standing characterization of the ability of firms to increase prices to raise profits. Shepherd describes these thresholds in terms of four-firm concentration ratios as follows:

- Tight Oligopoly: The leading four firms combined have 60-100 percent of the market; collusion among them is relatively easy.
- Loose Oligopoly: The leading four firms, combined, have 40 percent or less of the market; collusion among them to fix prices is virtually impossible.<sup>48</sup>
- The upper bound of a moderately concentrated market would correspond to a tight oligopoly, which was defined as a market where the top four firms (the four firm concentration ratio, or CR4) had more than 60 percent of the

market.<sup>49</sup> The lower bound of a moderately concentrated market with ten equal-sized firms would fall at this threshold. The leading firm proviso appears to have been dropped not because such a firm is not a source of concern but because that concern was subsumed in the broader analysis of “unilateral effects.”<sup>50</sup>

**TABLE III-2: DESCRIBING MARKET STRUCTURES**

| Department of Justice Merger Guidelines                         | Type of Market         | HHI    | Equivalents in 4-Firm Terms of Equal Sized Firms | Share CR4 |
|---|------------------------|--------|--|-----------|
|   | Monopoly <sup>a/</sup> | 10,000 | 1  | 100       |
|   | Duopoly <sup>b/</sup>  | 5,000  | 2  | 100       |
| (Old) Dominant Firm   | 65% share              | 4650   | 2  | 100       |
| <u>New Highly concentrated</u>                                  |                        | 2,500  | 4  | 100       |
| <u>New moderately concentrated</u><br>(Old) highly Concentrated |                        | 1,800  | 5.5  | 72        |
|   | Tight Oligopoly        |        |  | 60        |
| (Old) moderately concentrated<br>Unconcentrated                 | Loose Oligopoly        | 1,000  | 10   | 40        |
|   | Atomistic Competition  | 200    | 50   | 8         |

Sources and Notes a = Antitrust practice finds monopoly firms with market share in the 65% to 75% range. Thus, HHIs in “monopoly markets can be as low as 4200; b = Duopolies need not be a perfect 50/50 split. Duopolies with a 60/40 split would have a higher HHI. Sources: U.S. Department of Justice, *Horizontal Merger Guidelines*, revised August 2010, for a discussion of the HHI thresholds; William G. Shepherd, *The Economics of Industrial Organization* (Englewood Cliffs, NJ: Prentice Hall, 1985), for a discussion of four firm concentration ratios.

## IDENTIFYING MARKET POWER TRIGGERS

During merger review, a merger is evaluated by examining the level of concentration of the post-merger market and the impact of the merger on the level of concentration in the market. The higher the level of post-merger concentration and the larger the increase in concentration, the greater the threat to competition and the more likely the antitrust authorities are to block a merger or demand remedies to mitigate the potential harms of increased market power.

*Moderately Concentrated Markets:* Mergers resulting in moderately concentrated markets that involve an increase in the HHI of more than 100 points potentially raise significant competitive concerns and often warrant scrutiny.

*Highly Concentrated Markets:* Mergers resulting in highly concentrated markets that involve an increase in the HHI of between 100 points and 200 points potentially raise significant competitive concerns and often warrant scrutiny. Mergers resulting in highly concentrated markets that involve an increase in the HHI of more than 200 points will be presumed to be likely to enhance market power. The presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power (DOJ/FTC, 2010: 19).

In evaluating the impact of mergers, for example, antitrust authorities focus on a small but significant, nontransitory increases in price (SSNIP). The price increases that trigger concern are relatively small (5-10%) sustained for a relatively short period (two years).

The increases in concentration that trigger concerns about the impact of a merger reveal a great deal about the underlying problem of market power in concentrated markets. In order to raise a “potentially significant competitive concern” a merger in a moderately concentrated market as currently defined would involve a firm with a 17% market share increasing to 27%. In a highly concentrated market, a firm with a 25% market share increasing to a 32% market share through merger would be “presumed to be likely to enhance market power.”

Under the *Guidelines* in place throughout most of the period of this analysis, given the lower thresholds, mergers would have to be larger to trigger concerns, but more market would to be scrutinized because of the lower thresholds. In a market with 10 equal-sized firms, one of the firms would have to buy out another (doubling its market share from 10% to 20%) to raise concerns. In a market with six equal-size firms the merger would have to raise the market share of one firm by about 7%. Under either set of thresholds, a merger involving a dominant firm would create great concern, even though the *Guidelines* had dropped explicit reference to this situation. A mere two percent increase in concentration exceeds the threshold.

While the DOJ is deeply concerned about changes in market concentration above the thresholds that result from a merger, it should be clear that markets that are above those levels without a merger contain the threat of the abuse of market power. Evidence of the abuse of market power should trigger policy concerns, not only by antitrust authorities but regulatory authorities that have the mandate to protect consumers or promote competition more actively than antitrust does. Policies that deregulate highly concentrated markets where the abuse of market power is likely to be released are a particular concern.

## **OTHER MARKET POWER CONCERNS**

While the *Guidelines* use an HHI based approach to screen mergers for scrutiny, other factors are considered. Given the infrastructural nature of communications networks and their special role in democratic discourse, regulation frequently goes beyond antitrust in promoting open networks. Unique barriers to entry – like spectrum licenses or franchising restriction – are an important consideration because they can insulate incumbents from competition. Open access policies are grounded in this concern.

Another key characteristic of many industries is the extent of vertical integration. In many industries the act of producing a product can be readily separated from its distribution and



sale. Production is referred to as the upstream, distribution and sale are referred to as the downstream. The classic concern is that suppliers of applications or content distributed over communications networks, who are also owners of those networks, will favor their own content at the expense of the content of unaffiliated producers. Cross-owned products succeed, not because the win on the merits, but because they are favored by their owners who control a key choke point.

Because vertical integration involves the elimination of a (presumably market-based) transaction between two entities it has been the focal point of a great deal of analysis. Economic efficiencies are frequently claimed for vertical integration due to the elimination of transaction costs. Others fear inefficiency and potential abuse of the ability to leverage vertical market power that can result from excessive or unjustified vertical integration. Vertical integration may become the norm in the industry, making it difficult for unintegrated producers to survive. Vertically integrated entities may capture the market for inputs, making it difficult for independent entities to obtain the factors of production necessary to produce product. Also, with vertically integrated entities dominating a sector, reciprocity and forbearance rather than competition may become the norm.

One of the key aspects of the network neutrality debate is the problem of vertical leverage that the incumbent network operators have, when they are vertically integrated into complementary product markets. Their incentive and ability to frustrate competition in those complementary market is substantial and several of the key disputes swirled around behaviors that appeared to have anticompetitive effects. Vertical integration occurs when both activities are conducted by one entity. Antitrust examination of these issues has been “checkered” at best.<sup>51</sup> However, because these communications networks are frequently a choke point, bottleneck, or essential facilities that control the access to consumers by controlling the flow of communications, vertical integration and leverage are a heightened concern.<sup>52</sup>

The large incumbent telephone companies who dominate the special access market are vertically integrated in two senses. First, first mile and middle mile services are separate products. It may well be economically efficient to integrate them, but that merely underscores the economic challenge of competitive entry. Second, the local telephone companies sell many of the services that the competitors also sell, to a significant degree as a result of a merger wave after the passage of the 1996 Act.



#### **IV. ABUSE OF MARKET POWER SINCE THE DEREGULATION OF SPECIAL ACCESS SERVICES**

As noted above, because of the decision of the FCC to stop collecting data on special access, there is a paucity of publicly available data. The FCC has undertaken a significant, one-time data collection to consider reforming the special access marketplace that is not available for public inspection at this time. The FCC has hired an independent, third-party economist to analyze the data it has received. The FCC also has received separate analyses from economists representing incumbents and competitors; however, the details supporting the conclusions in those analyses have been submitted under seal to the agency. The FCC will treat the data confidentially until it determines to make some of it public, and both incumbents and competitors agree the FCC should make aggregated and anonymized data available to the public.

The FCC's public data ends in 2007, and various parties have tried to fill the gaps with studies of various aspects of the special access market. This analysis pieces together the available public data to show that there is a massive exercise of market power by large, dominant incumbents in the delivery of special access services. The order of magnitude estimates that can be cautiously derived from the publicly available data overwhelmingly support the conclusion that market power abuse in the special access market is costing consumers tens of billions of dollars annually and growing in size.

While this analysis focuses on the structural level analysis, there is evidence of anticompetitive behavior at the level of conduct. The development of competition for special access service was a direct victim of that earlier anticompetitive conduct with respect to opening the local network.<sup>53</sup> Moreover, in the pricing of special access by the dominant, large incumbent telecommunications companies we find anticompetitive "restrictive conditions," including "minimum volume commitments, portability conditions, revenue commitments, shortfall penalties, circuit migration charges and restriction, exclusivity-like provision"<sup>54</sup> that lock in consumers and undermine competition. The bottom line is simple, if they have market power they will use it to accomplish their goal of raising their rate of profit and protecting their market power.

In this section I present the publicly available evidence first. I then estimate the magnitude of the harm based on the evidence linked to the "old" FCC data. I also show that a recent study of harm yields similar estimates of abuse. The harm is well in excess of \$150 billion over the past five years.

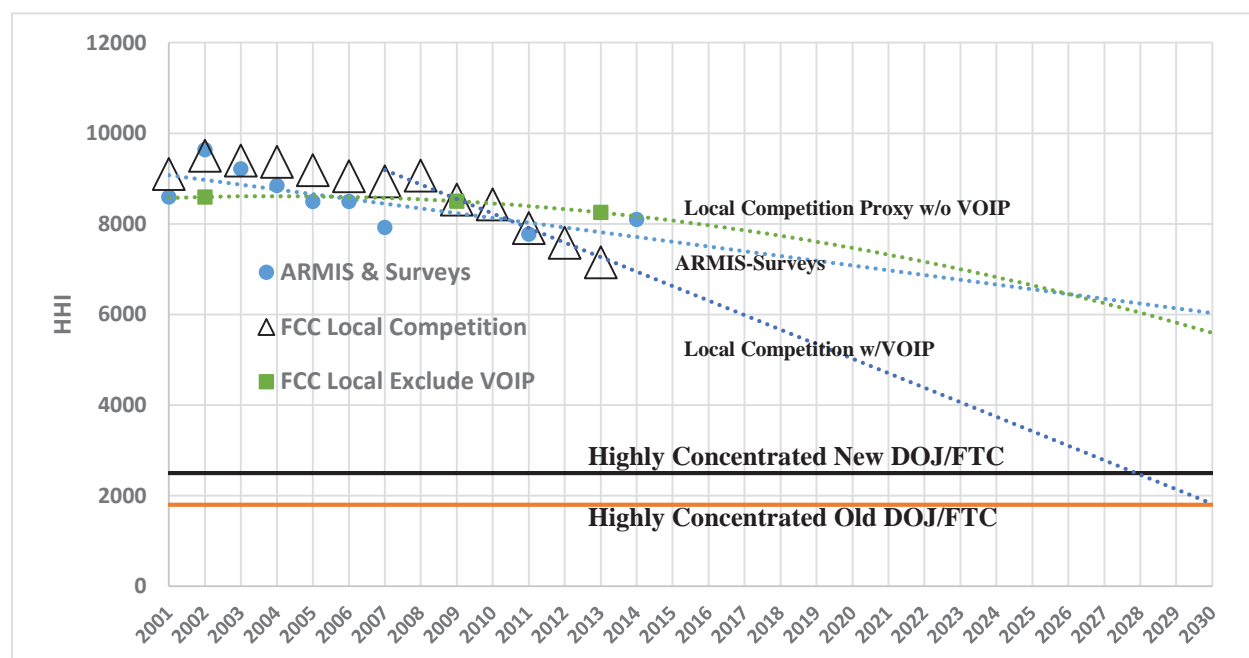
#### **CONCENTRATION**

Although the FCC predicted that competition would erode the market power of the incumbent telephone companies, after a decade and a half, their market share is still extremely high. As shown in Figure IV-1, the concentration of the special access market exceeds the thresholds of highly concentrated by a wide margin, being at least three times the threshold used by the antitrust authorities to designate a market as highly concentrated.

Figure IV-1 shows two estimates of the HHI. One is based on the ARMIS data, until it was terminated, and other surveys or evidence introduced into the special access proceeding.

Coverage is spotty. The second estimate is based on the FCC local competition reports. It assumes that CLECs' use of ILEC lines (wholesale and UNE) do not represent competition (since the CLECs are not self-supplying). It focuses on business lines only, as a proxy for the special access market. It assumes that the overall ratio of CLEC-owned lines to total lines (*i.e.* owned plus leased from ILECs) applies to business lines. It makes two different assumptions about whether CLEC interconnected VOIP for businesses represent competition (CLECs self-supplying). In the one assumption, interconnected VOIP is assumed to represent a substitute for special access. In the second assumption it is assumed to not be a substitute (it is excluded from the market for special access).

**FIGURE IV-1: CONCENTRATION IN SPECIAL ACCESS MARKETS**



**Sources:** Early ratios are based on FCC Monitoring Reports, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009. 2011 based on FCC *Local Competition Report*, CLEC business subscribers times percent of CLEC subscribers served by CLEC owned facilities.

I show both treatment of interconnect VOIP because the dramatic increase in interconnected VOIP in the business sector reflects a small part of the market where VOIP is an adequate service, but VOIP may not deliver the secure, stable quality service that many businesses need. This is readily apparent in the distribution of VOIP between residential and business CLEC customers. VOIP lines represent 47% of residential lines, but only 15% of business lines. Over 90% of CLEC residential customers are served with interconnected VOIP; fewer than one-third of CLEC business customers are. If VOIP worked well for businesses, we would expect to see higher, not lower, rates of use in that segment, since they tend to be more profitable. Finally, if we examine the loss in business access lines suffered by the ILECs since 2008, when the FCC began reporting interconnected VOIP, we find that the growth in CLEC interconnected VOIP accounts for about three-quarters of the loss. The ILEC losses reported here and the CLEC gains would not be considered part of the special access market. Thus, it would be a mistake to assume that the recent growth of interconnected VOIP will continue or reflects a change in the special access market.

My special access local competition proxy tracks well with the earlier ARMIS data. The level of concentration under both definitions is extremely high, with an HHI in the range of 7,000 to over 8,000. The latter figure is consistent with the non-proprietary evidence in the record, which puts the market share of the incumbents at 90% or higher.<sup>55</sup>

However, even if one does assume a continuous trend in which VOIP is a substitute for special access, it would take another decade and a half to get the market down to a level that would be unconcentrated. Thus, the prediction of competition made when the market was deregulated a decade and a half ago was wrong, and there is no reason to subject consumers to another decade and a half of abuse in the hope that it will someday prove correct, which is highly unlikely. If the product market does not include interconnected VOIP, which I believe is the more appropriate assumption, the extremely high level of concentration appears to be permanent, given the long-term trend. In either case, the proper approach should be to regulate the market until competition proves itself, which is what the FCC should have done 15 years ago. The deregulation decision should reflect the careful analysis of real world conditions in well-defined product and geographic markets, not hope and hype, to determine that workable competition is present.<sup>56</sup>

Figure IV-2 show the results of a study by the National Regulatory Research Institute for the National Association of Regulatory Utility Commissioners. NRRI gathered data on four services (DS-1 and DS-3, for termination and transport) in 50 large MSAs. The upper graph in Figure IV-2 shows the HHI for the 35 MSAs with complete data for DS-1 and DS3 in 2007. The gap in the graph is the national average calculated based on the approach I have applied to local competition data, with VOIP included. While it is on the high side of the NRRI estimates, the NRRI sample was for large MSAs, which are over eight times as dense as the national average. In fact, 90 percent of the DMAS have an HHI above 6,000. Thus, the evidence supports the conclusion that the special access market is extremely, highly concentrated.

The lower graph shows the distribution of MSAs for each service in four broad categories of concentration. There were no MSAs with an HHI less than 4400. The overwhelming majority were above the level of a duopoly.

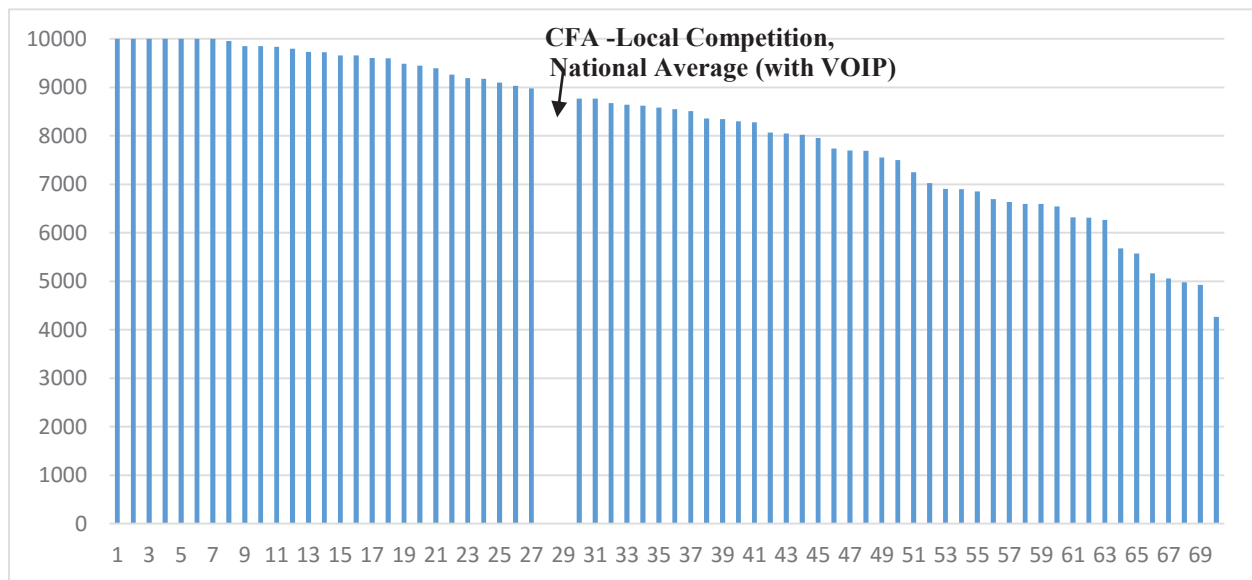
### **INCREASING REVENUES, DECLINING COST, SOARING PROFITS**

Given this very high level of concentration, we would expect the large incumbent telephone companies to exercise their market power, not simply to earn excess profits but also to weaken potential competition for the core communications services. By raising the costs that their potential competitors have to pay to deliver service they can stifle their growth.

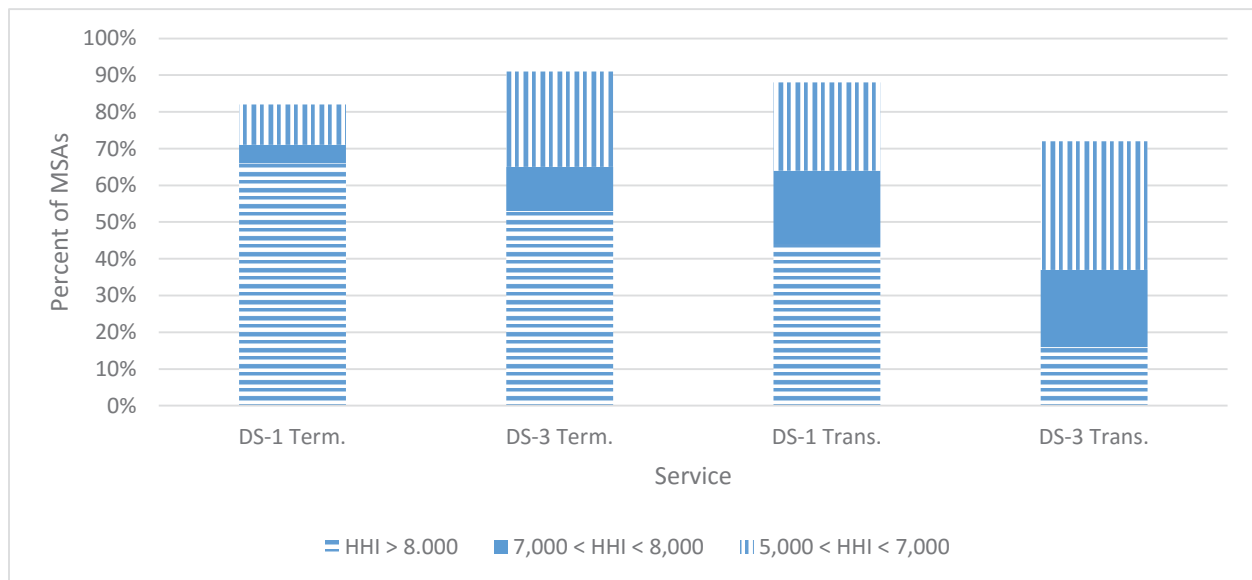
Figure IV-3 shows the dramatic increase in revenues after the decision to deregulate the special access market. Between 2000 and 2010, revenues increased by just under 8 percent per year. In the past half-decade, that rate of growth has doubled. This increase was triggered by further deregulation and elimination of oversight over special access rates, including the termination of the controls that the FCC placed on SBC at the time it acquired AT&T. Over the entire period, revenues increased by 11 percent per year. The first round of increase followed the initiation of pricing flexibility. The second came more recently when oversight was further relaxed.

**FIGURE IV-2: NRRI HHIs FOR DS-1 AND DS-3, IN 50 MSAs**

**Distribution of MSAs with reporting of all services**



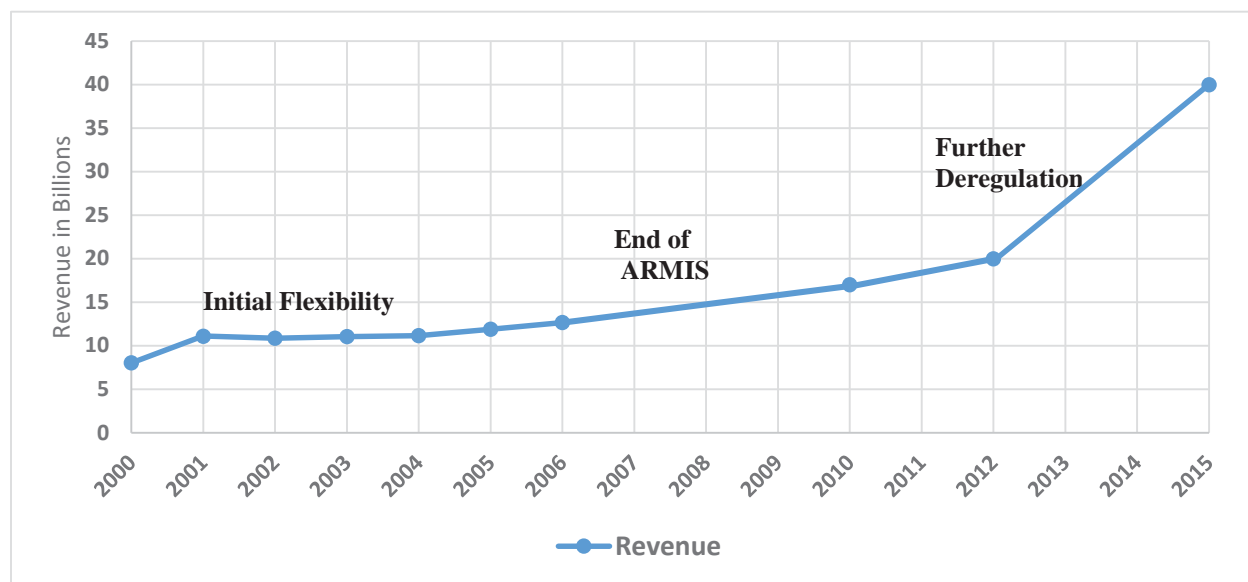
**Percent of MSAs for each service at specified levels of concentration**



**Source: Peter Bluhm with Dr. Robert Loube, *Competitive Issues in Special Access Markets*, National Regulatory Research Institute, January 21, 2009 09-02**

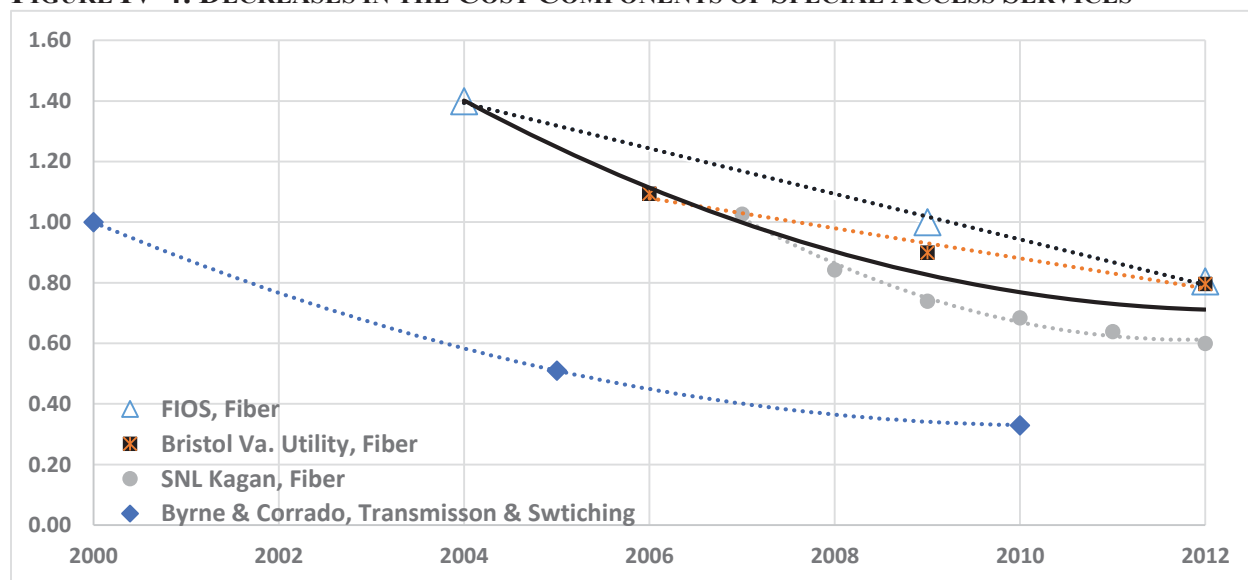
While revenues were increasing dramatically, costs were declining, particularly for fiber optic cable, as shown in Figure IV-4. Transmission and switching costs were declining about 12 percent per year over the first decade of the 21<sup>st</sup> century.

**FIGURE IV-3: SPECIAL ACCESS REVENUE**



Sources: 2000-2007, The official FCC ARMIS data is frequently the source for early estimates, see Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009.

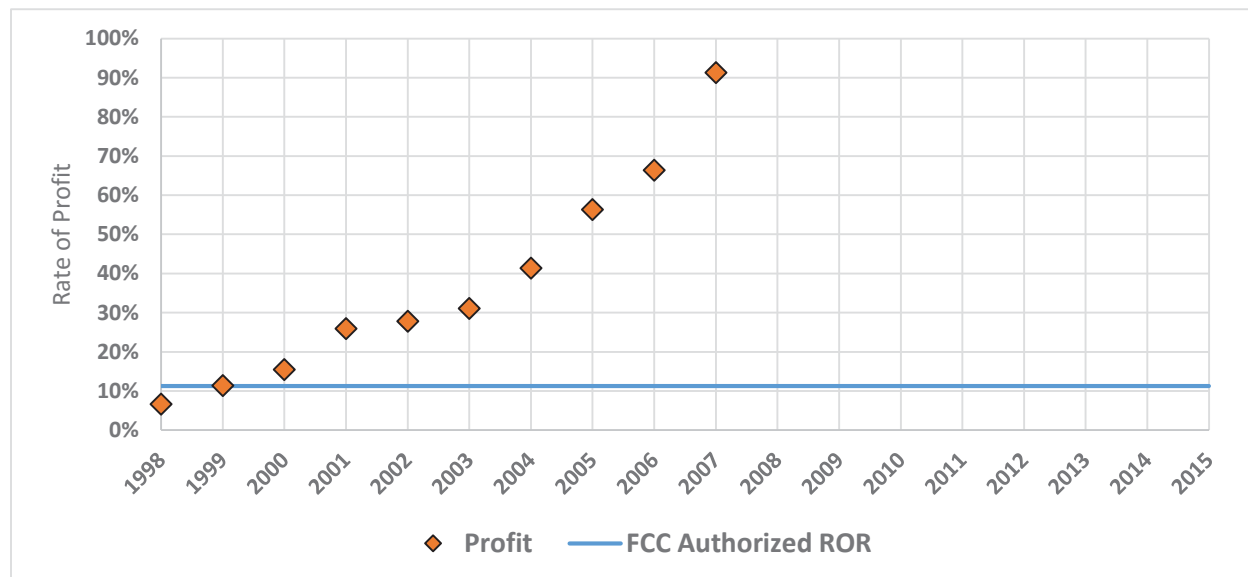
**FIGURE IV-4: DECREASES IN THE COST COMPONENTS OF SPECIAL ACCESS SERVICES**



Sources: David A. Byrne and Carol A. Corrado, *Price for Communications Equipment: Rewriting the Record*, September 2015; CostQuest and Windstream, *Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations*, Presentation to FCC Staff, June 4, 2015. attached to *ex parte* filing of Harris, Wiltshire & Grannis, *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers*, AT&T Corporation *Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, June 8, 2015, p. 16,

With revenues growing at almost 8% per year and costs declining by 12% per year, we would expect to see large double digit increase in profits. This is exactly what the data showed, as long as it was available (see Figure IV-5).

**FIGURE IV-5: SPECIAL ACCESS PROFITS**



**Sources:** 2000-2007, The official FCC ARMIS data is frequently the source for early estimates, see Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009.

Although detailed evidence on the communications equipment components that most directly affect special access costs is not available for the most recent period, the general index for communications equipment costs has continued to decline. In fact, the rate of decline nearly doubled in the 2010-2014 period. Thus, excess profits in the special access market are certain to be much larger today than they were when the collection of ARMIS data ceased.

For 2007, ETI estimated overcharges in the range of \$10 billion on total revenues of \$17 billion. In other words, excesses are over half the total. That estimate was calculated based on the rate of return that the FCC had allowed in 1990, as shown in Figure IV-5. This was a generous rate of return and it is very high in today's market. The FCC authorized rate of return was set in a period when the risk free rate of return (on 10-year T-bills) was about 8.5 percent; today it is less than 3 percent. The interest rate on triple A-rated corporate bonds is also about 5 percentage points lower. Although one can argue that the increase in competition raises the cost of capital, I have shown that competition is feeble at best. The competitive rate of return would be set well below the level that is a quarter of a century old.

Capital costs and the cost of capital are only part of the cost of service. I find bits and pieces of evidence on operating costs. Gately gave data that suggested a decline in operating cost of 10% per year for a few years in the mid-2000s. If equipment costs that have been declining by 16% per year represent half of the cost of service (as suggested by the WIK-study), and operating costs have been declining by 5%, the total cost has been declining by 10% per

year, or more. Sustained over a 15 year period (since the onset of pricing flexibility), the cost of special access would have fallen by 75%.

This highlights the problem not only with flexibility, but the the price cap approach, even if the rates are held steady at the rate of inflation. Profits would be growing 10% per year plus the rate of inflation. The price cap adjustment was 5.3% until 2005 and 1.8% for thereafter. Based on these factors, the average annual compound rate of growth in profits would be about 18 percent over the period from 2002 to 2007. In the five years after pricing flexibility for which we have ARMIS data, Gately shows a compound annual rate of increase in profits of 20%.

## **OVERCHARGES AND THEIR IMPACT**

The bottom line is clear. The overcharges are substantial. Since these excessive earnings have been rising rapidly, assuming an average of \$15 billion per year would put the cumulative total in the past five years alone at \$75 billion.

### **Indirect Macroeconomic Impacts**

These large overcharges certainly impose pain on the consumer pocketbook, but they are only part of the harm resulting from the abuse of market power. As noted above, special access is an important intermediate good. Raising its price to earn supranormal profits, reduces demand and depresses economic activity throughout the economy. Because communications are such an important intermediate good, it has a large multiplier effect. As shown in Figure II-2, above, lowering prices increases consumption. Total revenues increase, and the increase is larger than the reduction in price. At the competitive price, the providers of special access have to work harder (they deliver more services at a lower price). Their rate of profit is lower, but producer surplus is larger. Of course, consumer surplus increases much more, as does total social surplus.

A study by Economists Incorporated modelled the impact of the removal of the abuse of market power in the special access market. The estimation of the direct effect on the communications sector and its consumers was based on empirical assumption that are consistent with the above conceptual and empirical analysis. It considered price reductions in the range of 40% to 60%, consistent with the above estimate of overcharges. It used relatively low demand elasticities based on an analysis of the special access services. It also modelled the indirect economic impact by running a well-known econometric input output model to assess the effect on the economy (the RIMS II model). As shown in Table IV-1, using the middle case rate reduction of 50%, which is consistent the above analysis, we observe the effects of the price reduction for an important intermediate good.

The indirect effects resulting from the high multiplier are substantial. The increase in output in the economy is twice as large as the increase of the revenue in the sector. The firms that consume more special access (and pay a higher total bill at a lower price) produce more output, which pays for the increased input. The economy-wide increase in value added exceeds the increase in the spending on special access. The lost value in terms of indirect economic harm equals the direct consumer pocketbook harm as a result of the large multipliers. Given the



increase in revenue, a conservative estimate of indirect costs for the present would be almost \$20 billion per year and the five-year total would be \$75 billion.

**TABLE IV-1: INDIRECT MACROECONOMIC LOSSES FROM ABUSIVE PRICING OF SPECIAL ACCESS (BILLIONS OF \$, MIDDLE CASE, 50% RATE CUT)**

|      | Elasticity | Pocketbook Savings Output | Monetary increase Economy-wide |
|------|------------|---------------------------|--------------------------------|
| 2010 | -1.5       | 9.0                       | 16.6                           |
|      | -1.6       | 9.0                       | 20.6                           |
|      | -1.7       | 9.0                       | 25.0                           |
| 2015 | -1.5       | 18                        | 33.2                           |
|      | -1.6       | 18                        | 41.2                           |
|      | -1.7       | 18                        | 50                             |

Source: Stephen E. Spiwak, *Economic Benefits of Special Access Price Reductions*, Economists Inc., March 2011.

### **An Estimate Based on International Comparisons**

A recent study filed in the ongoing proceeding provides an independent source of data that supports this estimate of the harm imposed by the abuse of market power in the provision of special access service.<sup>57</sup> The study adopts the same welfare economic framework used in this paper. It launches from the observation that in other nations where special access was not deregulated, prices are much lower. In the U.K., which is the primary focus, rates are half of the U.S.<sup>58</sup>

The study then estimates consumer welfare transfers due to market power, deadweight efficiency losses and indirect macroeconomic costs, called spillovers. It makes a counterfactual back-cast. ‘What if rates had been driven down to cost in the past five years (*i.e.* 2011 to 2016)?’

For 2016 the study estimates consumer welfare transfers plus deadweight losses (both of which come out of consumer surplus) at \$2.8 billion and spillovers at \$5.9. The five-year totals are \$13 billion and \$28.3 billion respectively. These estimates are not directly comparable to the ARMIS-based estimates, but several simple adjustments show that the results are actually quite close to those discussed above.

First, the WIK-study deals only with Ethernet service, which in the U.S. is only 40% of the market. Scaling the results to the total market more than doubles those numbers (as shown in Table IV-2). Second, the price reduction in the study is less than half of the reduction suggested by the ARMIS-based analyses. There is a ready explanation for this. The WIK-study is based on a survey of rates that may have excess costs imbedded. For example, the rate of return on U.K. special access (even though it is regulated) is twice the level that was allowed in the U.S., which I have shown is too high. This is the same problem as in the U.S., where the productivity factor bears no relationship to the actual decline in costs. The cost estimate would be doubled again. The survey of rates includes the cost of new entrant special access services, which are

higher than the cost of incumbent services. At the market share of the largest competitor in each market in the U.S. (10%), CLEC costs are twice as high as incumbent costs.<sup>59</sup> If this excess cost is imbedded in the benchmark, it would be 20% too high ( $2 \times .1$ ). Thus the price reduction necessary to make rates and profits reasonable would be at least twice as large as modeled in the WIK study. Therefore, scaling up to include all special access service and doubling the price reduction, renders the ARMIS-based and international studies reasonably close.

**TABLE IV-2: RECONCILING ESTIMATES OF HARM (billions of dollars)**

| Cost Period &<br>Component | WIK<br>Study | Adjustments |       | ARMIS Elasticities |      |      |
|----------------------------|--------------|-------------|-------|--------------------|------|------|
|                            |              | TDM         | Price | -1.5               | -1.6 | -1.7 |
| In 2016                    |              |             |       |                    |      |      |
| Welfare + Deadweight       | 2.8          | 7           | 14    | 18                 | 18   | 18   |
| Spillover                  | 5.9          | 14.75       | 29.5  | 33.2               | 41.2 | 50   |
| Total                      | 8.7          | 21.75       | 43.5  | 51.2               | 59.2 | 68   |

**Source:** WIK-Consult Report, *Ethernet Leased Lines: An International Benchmark*, January 2016, Attached as an Appendix to “Reply Comments of BT Americas,” *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, February 19, 2016. EI refers to Stephen E. Spiwak, *Economic Benefits of Special Access Price Reductions*, March 2011; As described in text, ARMIS refers to Susan Gately, et al., *Longstanding Regulatory Tools Confirm BOC Market Power*, Economics and Technology Inc., January 2010, Charles W. McKee, *Special Access: The Unregulated Monopoly*, Sprint, March 4, 2009.

Table IV-2 shows the effect of a rate reduction that is twice as large. The spillover effect appears to be much larger because the multiplier is assumed to be much larger and notwithstanding the fact that the elasticity of demand is lower. On balance, these adjustments suggest that the estimates are actually reasonably close. Although the failure of the FCC to collect and publish data on costs, prices and profits in the special access market make it difficult to estimate the magnitude of overcharges and excess profits with precision, it is clear that the harm is quite large, well in excess of \$150 billion over the past five years.

## CONCLUSION

To sum up, I have demonstrated the structural conditions for a severe abuse of market power in the delivery of special access services. Cost and price trends and direct evidence of show substantial overcharges and excess profits. Direct overcharges of \$20 billion per year burden household budgets. Indirect economic losses that result from the drag on the economy add another \$20 billion to the harm. These harms have been building up since the premature deregulation of special access and they have accelerated in recent years. Over the past five years a cautious estimate of the harm is in excess of \$150 billion, split equally between pocketbook harm and indirect losses of economic output.

Special access is one of the clearest cases of unjustified deregulation since the passage of the 1996 Act in terms of the harm imposed, measured by the rate of overcharges, if the not the absolute value of harm. It came so quickly that there could be no pretense that competition had

already grown enough to discipline the market power of the large incumbents. The predictive theory offered by the FCC to authorize deregulation seriously misunderstood the market structure. For over a decade, the FCC ignored the problem and tried to hide it behind a veil of corporate secrecy. The time for decisive action to end the abuse of market power is long past.

## ENDNOTES

- <sup>1</sup> Brett Creech, “Expenditures on cellular phones services have increased significantly since 2007,” *Prices and Spending*, Bureau of Labor Statistics, February 2016; “Spending on Cell Phone Services Has Exceeded Spending on Residential Phone Services, *Consumer Expenditure Survey*”
- <sup>2</sup> Mark Cooper, 2015, “The ICT Revolution in Historical Perspective: Progressive Capitalism as a Response to Marxist Complaints, Piketty Pessimism and Free Market Fanaticism About the Deployment Phase of the Digital Economy,” Telecommunications Policy Research Conference, September, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2587085](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2587085); ICT, Mark Cooper, 2014, The Long History and Increasing Importance of Public Service Principles For 21<sup>st</sup> Century Public Digital Communications Networks, *Journal on Telecommunications and High Technology Law* 12(1); Mark Cooper, 2013, “Why Growing Up is Hard to Do: Institutional Challenges for Internet Governance in the “Quarter Life Crisis of the Digital Revolution,” *Journal on Telecommunications and High Technology Law*, 2013. 11(1).
- <sup>3</sup> Intermediate consumption (also called “intermediate expenditure”) is an economic concept used in national accounts, such as the United Nations System of National Accounts (UNSNA), the US National Income and Product Accounts (NIPA) and the European System of Accounts (ESA). Conceptually, the aggregate “intermediate consumption” is equal to the amount of the difference between Gross Output (roughly, the total sales value) and Net output (gross value added or GDP). In the US economy, total intermediate consumption represents about 45% of Gross Output. The services component in intermediate consumption has grown strongly in the US, from about 30% in the 1980s to more than 40% today. Thus, intermediate consumption is an accounting flow which consists of the total monetary value of goods and services consumed or used up as inputs in production by enterprises, including raw materials, services and various other operating expenses. Because this value must be subtracted from Gross Output to arrive at GDP, how it is exactly defined and estimated will importantly affect the size of the GDP estimate. Intermediate goods or services used in production can be either changed in form (e.g. bulk sugar) or completely used up (e.g. electric power). Intermediate consumption (unlike fixed assets) is not normally classified in national accounts by type of good or service, because the accounts will show net output by sector of activity. However, sometimes more detail is available in sectoral accounts of income & outlay (e.g. manufacturing), and from input-output tables showing the value of transactions between economic sectors. [https://en.wikipedia.org/wiki/Intermediate\\_consumption](https://en.wikipedia.org/wiki/Intermediate_consumption).
- <sup>4</sup> Id.
- <sup>5</sup> Measure by household expenditures, see Brett Creech, “Expenditures on cellular phones services have increased significantly since 2007,” *Prices and Spending*, Bureau of Labor Statistics, February 2016; “Spending on Cell Phone Services Has Exceeded Spending on Residential Phone Services, *Consumer Expenditure Survey*.”
- <sup>6</sup> Two studies in the hearing record demonstrate the centrality of communication in general and special access in particular by running or applying the results of econometric models, see Stephen E. Spiwak, Economic Benefits of Special Access Price Reductions, March 2011, (Hereafter, Spiwak), attached to *Letter from Maura Corbett, NoChokePoints Coalition to Marlene H. Dortch*, March q5, 2011; *WIK-Consult Report, Ethernet Leased Lines: An International Benchmark*, January 2016, Attached as an Appendix to “Reply Comments of BT Americas,” February 19, 2016. The latter study reviews the results of numerous earlier efforts to model this impact. While the specific multipliers vary from study to study, they all show very substantial macroeconomic impacts, or as the WIK study call them “spillovers.”
- <sup>7</sup> Mid-America Freight Coalition “The Economic Importance of Freight,” p. 2.
- <sup>8</sup> Transportation and Economic Development Authors: Dr. Jean-Paul Rodriguez and Dr. Theo Notteboom, [A regional analysis reinforces this observation, Oregon, Transportation, Plan Update, Transportation and the Economy](http://people.hofstra.edu/geotrans/eng/ch7en/conc7en/ch7c1en.html) Manufacturing is dependent on transportation to receive raw materials and to deliver its products. Manufacturing is usually a highly competitive activity. Unless an area has other low cost attributes, high transportation costs will cause manufacturers to leave or avoid that area. <http://people.hofstra.edu/geotrans/eng/ch7en/conc7en/ch7c1en.html>
- <sup>9</sup> National Broadband Plan, at xi, available at <https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf> (2010) (“Like electricity a century ago, broadband is a foundation for economic growth, job creation, global competitiveness and a better way of life. It is enabling entire new industries and unlocking vast new possibilities for existing ones. It is changing how we educate children, deliver health care, manage energy, ensure public safety, engage government, and access, organize and disseminate knowledge.”), Mark Cooper, Mark Cooper, “The Socio-Economics of Digital Exclusion in America,” *Telecommunication Policy Research Conference*, 2010.

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- <sup>10</sup> This is based on the “equal-sized” firms interpretation of the HHI as discussed in Section III. Other evidence on the level of concentration cited in Table II-1, suggests the market share of the dominant incumbent telephone companies is closer to nine-tenths.
- <sup>11</sup> In addition to the specific sources cited throughout this paper, detailed discussions of the broad topic can be found in Mark Cooper, 2014, *Petition to Deny of Consumer Federation of America, Et Al., In the Matter of Applications of Comcast Corporation, Time Warner Cable Inc. and Charter Communications Inc. for Consent to Transfer Control of Licensees and Authorization*, before the Federal Communications Commission, Mb Dkt No. 14-57, August 25; Mark Cooper, 2010, *Declaration of Dr. Mark Cooper, In the Matter of Applications for Consent to the Transfer of Control of Licenses General Electric Company, Transferor, to Comcast*, Transferee, before the Federal Communications Commission, Docket No. 10-56, May; Mark Cooper, 2002, *Cable Mergers and Monopolies*: Economic Policy Institute, 2002, Mark Cooper, 2002, *In the Matter of Implementation of Section 11 of the Cable Television Consumer Protection and Competition Act of 1992* (CS Docket No. 98-82), *Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996* (CS Docket No. 96-85), *The Commission’s Cable Horizontal and Vertical Ownership Limits and Attribution Rules* (MM Docket No. 92-264) *Review of the Commission’s Regulations Governing Attribution Of Broadcast and Cable/MDS Interests* (MM Docket No. 94-150), *Review of the Commission’s Regulations and Policies Affecting Investment In the Broadcast Industry* (MM Docket No. 92-51), *Reexamination of the Commission’s Cross-Interest Policy*, (MM Docket No. 87-154), January.
- <sup>12</sup> F. M. Sherer & David Ross, *Industrial Market Structure and Economic Performance* (3d ed. 1990), pp. 4.
- <sup>13</sup> *Id.*, p. 4.
- <sup>14</sup> *Id.*, p. 18, With the emphasis on the impersonal process of competitive markets and freedom to choose, competitive economic markets are also preferred because they provide a strong basis for democratic political systems.
- <sup>15</sup> William M. Landes and Robert A. Posner, “Market Power in Antitrust Cases,” *Harvard Law Review*, 94 (5), two of the leading Chicago school law practitioners of *laissez faire* economics accept this principle. They focus in on the key question from the point of view of competition in markets, asking “what degree of market power should be actionable?”
- <sup>16</sup> *Id.*, p. 953.
- <sup>17</sup> *Id.*, p. 947.
- <sup>18</sup> Landes and Posner acknowledged this in some respects, (p. 950) “In all of the examples, the effect of adopting the approach advocated in this paper was to reduce or eliminate the inference of market power drawn from market share data. This will probably be the result in most cases of using our approach, simply because exclusive and uncritical focus on market share data tends to produce an exaggerated impression of market power. In some cases, however, our approach will result in correcting an underestimation of market power based on market share.” See also p. 953.
- <sup>19</sup> Cooper, 2015, ICT; Mark Cooper, 2014, *The Digital Past as Prologue: How a Combination of Active Public Policy and Private Investment Produced the Crowning Achievement (to Date) of Progressive American Capitalism*, Regulating the Evolving Broadband Ecosystem, AEI/University of Nebraska Forum, Federal Communications Commission, September 10; Mark Cooper, 2002, “Restoring the Balance of Public Values and Private Incentives in American Capitalism,” *Too Much Deregulation or Not Enough*, Cato Institution, November 1; Mark Cooper, 2000, “Progressive, Democratic Capitalism In The Digital Age,” *21<sup>st</sup> Century Technology and 20<sup>th</sup> Century Law: Where Do We Go from Here?* The Fund for Constitutional Government, Conference on Media, Democracy and the Constitution, September 27.
- <sup>20</sup> John B. Taylor, 1998, *Economics*, pp. 276-277, “The monopoly exploits its market power by holding back on quantity produced and causing the price to rise compared to the competitive equilibrium... [T]he monopoly takes, in the form of profits, some of the consumer surplus that would have gone to the consumers in competitive markets.”
- <sup>21</sup> John B. Taylor, 1998, *Economics*, pp. 380. The elasticity of supply acts in the opposite direction, making the outcome a result of the combination of the two, suggesting a sharing, but the elasticity of the demand curve is larger than the elasticity of the marginal revenue curve, so market power “distorts” the sharing. The lower the elasticity of demand, the higher the mark up of price over cost (p. 278).
- <sup>22</sup> Lester D. Taylor, 1994, *Telecommunications Demand in Theory and Practice*, p. 262, “Taylor identifies three characteristics of necessities – inability to replace the good, large relative size of the expenditure, and importance of the good in a broad sense. ‘The point of departure will be to remind ourselves of a point this is probably too often forgotten: that price elasticity consists of two components, an income effect and a substitution effect. The substitution effect is a measure of the extent to which goods and services can substitute for one another when



there is a price change without making the consumer any worse off in terms of consumer welfare. The income effect, on the other hand is a measure of the extent to which the consumer's real income is changed when there is a change in price. Ordinarily, the importance of the income effect is represented by the importance of the good whose prices has changed in the consumer's budget. Goods whose expenditure account for a small proportion of the consumer's total expenditures will have a small (or even tiny) income effect, while a good whose expenditures account for a large portion of total expenditure will have a possibly large income effect. Goods that in ordinary discourse are seen as necessities (such as heating fuels and telephone service) will also have relatively larger income effects the lower the level of income."

<sup>23</sup>Id., p. 262, "In assessing income effects, however, a point that is usually overlooked is the effect on the consumer's welfare of not consuming a good because of a price increase. In the case of making or not making a phone call because it has become more expensive, the question that needs to be asked is what are the consequences (not necessarily in monetary terms) of not making the call. For residential consumers, this cost is usually cast in term of the utility (or satisfaction) that is given up by the call not being made. For many calls, however, this is not the correct measure of cost, for the call may be important to the *earning* of income. In this case, the actual income effect of not making a telephone call may be large, although the decrease in real income, (as customarily measured), occasioned by the price increase may be extremely small.

<sup>24</sup>Alfred Kahn, *The Economics of Regulation: Principles and Institutions*, Vol 1, p. 11 (1988).

<sup>25</sup>Cooper, 2015, ICT.

<sup>26</sup>Id.

<sup>27</sup>Cooper, 2015, ICT.

<sup>28</sup>David M Byrne and Carol A. Corrado, "Recent Trends in Communications Equipment Prices," *FEDS Notes*, September 29, 2015, p. 3.

<sup>29</sup>Id.

<sup>30</sup>Benjamin, K, Sovacool and Michael H. Dworkin, *Global Energy Justice* (Cambridge University Press, 2014, pp. 48, 312; Bureau of the Census, U.S. Department of Commerce, *Historical Statistics of the United States: Colonial Times to the Present*; Robert C. Allen, 1981, "Accounting for Price Changes: American Steel Rails, 1879-1910, *Journal of Political Economy*, 89(3); Knick Harley, 1998, "Prices and Profits in Cotton Textiles During the Industrial Revolution," *Economic History Review*, 51(1)

<sup>31</sup>Scherer and Ross, 1990, pp. 70-71, "A related performance-oriented approach focuses on some measure of the net profits realized by firms or industries."

<sup>32</sup>Landes and Posner, p. 941, "If marginal cost were known, the Lerner Index could be determined directly (assuming the price is observable), without measuring the firm's elasticity of demand. But because marginal cost is a hypothetical construct, -- the effect on total cost of a small change in output -- it is very difficult to determine in practice, especially by the methods of litigation.

<sup>33</sup>"Landes and Posner on Market Power: Four Responses," *Harvard Law Review*, 94 (5),

<sup>34</sup>Taylor, 1998, p. 147.

<sup>35</sup>Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* (Cambridge: MIT Press, 2000), p. 149

<sup>36</sup>Jerry Hausman, 1997, "Valuation of New Goods under Perfect and Imperfect Competition," in Timothy F. Bresnahan and Robert J. Gordon (Eds.), *The Economics of New Goods*, p. 231.

<sup>37</sup>Given the cost structure of the industry and the fact that he was analyzing the introduction of a new brand, the decision to ask what markup was necessary to cover fixed costs seems reasonable.

<sup>38</sup>J. W. Friedman, *Oligopoly Theory* (Cambridge: Cambridge University Press, 1983), p. 8-9.

<sup>39</sup>U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, 1997 section 0.1.

<sup>40</sup>*Horizontal Merger Guidelines*, at section 0.1.

<sup>41</sup>*Gene Kimmelman and Mark Cooper*, Antitrust and Economic Regulation: Essential and Complementary Tools to Maximize Consumer Welfare and Freedom of Expression in the Digital Age," *Harvard Law & Policy Review*, 2015:9,

<sup>42</sup>See Erick Brynjolfsson, MIT Center for Digital Business, Address at NITRD Symposium: Impact of Networking and Information Technologies on Productivity and Innovation (Feb. 16, 2012), slides available at <http://perma.cc/M3W7-YKKD>; see also STANDARD CHARTERED, TECHNOLOGY: RESHAPING THE GLOBAL ECONOMY (2015), available at <https://perma.cc/Y634-PKR2>.

<sup>43</sup>Alfred Kahn, *The Economics of Regulation: Principles and Institutions*, 1988, p. 11.

<sup>44</sup>Id.

<sup>45</sup>Id.

<sup>46</sup>Id. at 114.

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- <sup>47</sup> The HHI can be converted to equal-sized equivalents as follows:  
 Equal-sized voice equivalents =  $(1/HHI) * 10,000$ .
- <sup>48</sup> William G. Shepherd, *The Economics of Industrial Organization*, 1985, p. 4.
- <sup>49</sup> In the case of 5.5 equal-sized firms, the four firm concentration ratio would be 72%.
- <sup>50</sup> Jonathan B. Baker, 1996, *Unilateral Competitive Effects Theories in Merger Analysis* Antitrust Developments Program, American Bar Association Section of Antitrust Law, Annual Meeting, August 6. published in *Antitrust*, vol. 11, Spring 1997, pp. 21-26. Unilateral theories are now by far the most common, at least in the memoranda Associate Director Gary Roberts and I have written to the Commission. This was not always the case. The first Chicago-school era merger guidelines, issued by the Justice Department in 1982, highlighted factors facilitating collusion; that discussion was the predecessor to the current Guidelines' discussion of coordinated competitive effects. Although the 1982 Guidelines also contained a "leading firm proviso" that dealt with the creation or enhancement of the market power of a dominant firm, the application of this unilateral theory of potential adverse competitive effects of mergers was very narrow. As late as 1986, the leading survey of antitrust policy issues raised by horizontal mergers, this Section's publication *Horizontal Mergers: Law and Policy*, essentially ignored unilateral theories.
- <sup>51</sup> Robert Pitofsky, 1997, *Vertical Restraints and Vertical Aspects of Mergers--A U.S. Perspective* *Vertical Restraints and Vertical Aspects of Mergers--A U.S. Perspective*, Fordham Corporate Law Institute, 24th Annual Conference on International Antitrust Law and Policy, October 16; Steven Salop, 2008, "Economic Analysis of Exclusionary Vertical Conduct: Where Chicago has Overshot the Mark," in Robert Pitofsky (Ed.), *How the Chicago School Overshot the Mark*.
- <sup>52</sup> Scherer and Ross, pp. 526-527; Shepherd, p.2890 – 304; Asch, Peter and Rosalind Senaca, *Government and the Marketplace* (Dryden Press, Chicago: 1985), p. 248; Krattenmaker, T.G. and S. C. Salop, "Anti-competitive Exclusion: Raising Rivals' Costs to Achieve Power Over Prices," *The Yale Law Journal*, 92:2 (1986); Ordover, J., A. O. Sykes and R.D. Willig, "Non-price Anti-Competitive Behavior by Dominant Firms Toward the Producers of Complementary Products," in F. M. Fisher (Ed.), *Antitrust and Regulation* (Cambridge: MIT Press, 1985). On the cable industry see Ordover, J.A. and R. D. Willig, "Herfindahl Concentration, Rivalry, and Mergers," *Harvard Law Review*, 95: 1982.
- <sup>53</sup> Mark Cooper, *Broken Promises and Strangled Competition: The Record of Baby Bell Merger and Market Opening Behavior*, Consumer Federation of America, June, 2005; "Comments and Reply Comments of Dr. Mark Cooper on Behalf of the Texas Office of People's Counsel and the Consumer Federation of America," before the Federal Communications Commission, *In the Matter of Final Unbundling Rules*, Docket Nos. WC-04-313, CC-01-338, October 4, 19, 2004.
- <sup>54</sup> Declaration of Bridger Mitchell, *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, January 19, 2010, pp. 29-32.
- <sup>55</sup> Cable market share is put at about 7% large CLEC market share is put at less than 3 percent.
- <sup>56</sup> Bessen, ¶¶ 3, 304; Sappington, ¶ 25.
- <sup>57</sup> WIK-Consult Report, *Ethernet Leased Lines: An International Benchmark*, January 2016, Attached as an Appendix to "Reply Comments of BT Americas," *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, February 19, 2016. (Hereafter, WIK-study)
- <sup>58</sup> BT, UK – Regulation of Leased Lines and Benefits for Consumers, June 2015, Attached to "Letter from Sheba Chacko, Head – America Regulation and Global Telecoms Policy, BT Americas, to Marlene H. Dortch," *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, June 2, 2015. WIK study, Figures 19 and 21.
- <sup>59</sup> *CostQuest and Windstream, Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations*, Presentation to FCC Staff, June 4, 2015. pp. 12-13, attached to *ex parte* filing of Harris, Wiltshire & Grannis, *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, June 8, 2015,